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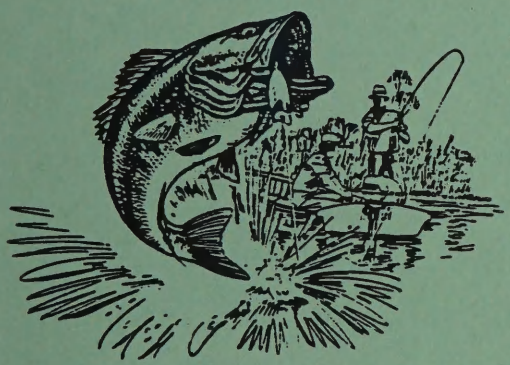
Montana Statewide Angling Pressure 1993



Montana
Fish, Wildlife & Parks

Montana

Statewide Angling Pressure

Mail Survey

1993

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Montana Department of Fish, Wildlife and Parks

October, 1995

INTRODUCTION

The Montana Department of Fish, Wildlife and Parks has conducted statewide angling mail surveys in the past. Bishop (1959, 1960 & 1961) conducted the first recorded mail survey of fishing pressure on a statewide basis for Montana. He found that residents fished 1,323,129 angler days, nonresident season license holders fished 60,632 angler days, and nonresident 6-day permit holders fished 40,933 angler days for the 1958 season. In 1959 residents fished 1,345,000 angler days, nonresident season license holders fished 54,000 angler days, and nonresident 6-day permit holders fished 121,000 angler days. In 1960 the third annual survey was conducted and residents fished 1,356,000 angler days, nonresident season license holders fished 53,000 angler days, and nonresident 7-day permit holders fished 112,000 angler days.

In 1968 the statewide angling pressure mail survey was again initiated by Holton (1970). He found residents had fished 1,519,126 angler days, nonresident season license holders fished 69,653 angler days, and nonresident 6-day permit holders fished 161,772 angler days. Holton (1971) conducted another statewide survey for the 1969 license year. No results were reported because it was felt they were too high due to sampling problems.

In 1975, Gaffney (unpublished data) conducted a statewide survey of angling pressure by mail. He found residents fished a total of 2,314,030 angler days and nonresidents 508,034 angler days for a statewide total of 2,822,093 angler days. An attempt was made to continue that statewide survey in 1976 using the 1975 mailing lists. This did not provide adequate samples for nonresidents, so only resident pressure was obtained.

Holton (1974) stated,

> "The lack of up-to-date fishing pressure information on individual waters has been a handicap in fisheries management. It is recommended that (the) evaluation of (a) mail survey to fill this need be accomplished as soon as feasible."

The surveys were started again in 1982 and run for four consecutive years (McFarland, 1989). The statewide angling pressure ranged from 2,197,402 to 2,723,713 angler days. In 1986 the surveys were again cancelled for lack of funding.

In 1989, the Montana Legislature approved funding for an "Enhanced Survey of Angling Pressure". The funding was such that the survey was to be conducted every other year. In March, 1989, the statewide angling use mail survey was again re-initiated. The statewide angling pressure was estimated at 2,336,085 angler days (McFarland, 1991). In 1991, the statewide use was estimated at 2,300,880 (McFarland & Hughes, 1993).

METHODS

The 1993 statewide angling mail pressure survey began in March of 1993 and was conducted for the license year ending in February, 1994.

Samples were drawn from the Department's Sportsman's Database. There are six types of fishing licenses available to residents: a season license, a combo license, a sportsman's license, a "senior" license, a "youth" license and a disabled license. A season license is required for those resident anglers between the ages of 15 and 61 inclusive (a conservation license is required as a prerequisite to purchasing any fishing license). Residents between the ages of 12 and 14 inclusive, are required to purchase a conservation license to fish. These were determined by using the date of birth on the Conservation license and were classified as "youth" license holders. The combo license combines a season fishing license and a conservation license. A sportsman's license provides a deer "A" tag, elk tag, bear tag, conservation license, a game bird stamp and a fishing license. Residents 62 years of age and older are entitled to fish by purchasing a conservation license. These were determined by using the date of birth on the Conservation license and were classified as "senior" license holders. Residents who are certified as permanently and substantially disabled may purchase a "Disabled Persons Conservation License". The "senior", "youth", and "disabled" licenses were combined for the "SYD" population.

Nonresidents 15 years of age and older must have a valid Montana fishing license to fish. Those nonresidents under the age of 15 may fish by buying a nonresident license or by being in the company of an adult with a valid Montana fishing license. If the latter, the combined limit may not exceed the limit for one adult. Nonresidents have four types of licenses available for fishing in Montana; a combo license, a seasonal license, a two-day permit, and the big game combo. A nonresident conservation license is required as a prerequisite to purchaasing any nonresident fishing license. The combo license combines a nonresident conservation license and seasonal fishing license. The big game license includes a conservation license, an elk tag, a deer "A" tag, a black bear tag, a fishing license and an upland game bird license. A two-day permit enables the nonresident angler to fish for two consecutive days of their choice. Anglers may purchase as many two-day permits as they want.

A computer program was written in PASCAL to create three populations of anglers from which to draw samples. A resident population, a nonresident population and a "SYD" population were created each month. The resident population comprised the following license types: combo, season, and sportsman. The nonresident population comprised the following license types: nonresident combo and nonresident season. The "SYD" population consisted of the following license types: senior (62 years of age and older), youth (between 12 and 14 years of age inclusive), and disabled.

Gaffney (1982) sampled the 17,000 nonresident big game license holders in 1980 and found that 29.6% had fished while in Montana. They averaged 3.9 days fishing per person which would account for nearly 20,000 man days of use. This is less than 1% of the total pressure in the state. Due to budgetary constraints and the small amount of pressure, the big game license holders were not included in the nonresident sampling for 1993.

A PASCAL computer program was used to pull a random sample from each population. The amount pulled from each population was proportionally allocated to the angling pressure each population exerted from previous surveys. This proportion remained constant throughout all sampling periods.

The sample from each population was copied into a dBASE format structure and wave information and sequential serial numbers added. A dBASE computer program was written to affix names and address as well as bar codes directly to each questionnaire. The questionnaire, and a return envelope were stuffed into window envelopes and mailed (see appendix for examples). All questionnaires were mailed bulk rate.

Sampling was done on a stratified basis. Strata (waves) were monthly for the resident, seasonal nonresident, and SYD populations (Table 1).

Nonresident 2-day license holders could not be sampled directly, so nonresident conservation license holders were sampled and questions asked to ascertain if they were valid 2-day permit holders. These questionnaires were sent out the beginning of March since less than 2% (2,084) of the 2-day permits are remitted after this date. The questionnaire asked about their fishing in Montana for the entire license year.

Table 1. Period of time covered for waves for the 1993 statewide angling survey.

Wave	Time Period covered
1	March '93
2	April
3	May
4	June
5	July
6	August
7	September
8	October
9	November
10	December
11	January '94
12	February
99	Nonresident 2-day

Authorized private dealers sell fishing licenses throughout the state. In addition the seven regional headquarters and the Helena office sell licenses. All licenses are to be remitted to the licensing bureau in Helena by the 10th of the following month of the sale. Each license is a five-part form. The original remains with the angler, the first copy was sent to Bozeman for use in the surveys, the second copy was retained in Helena, the third copy was sent to the area warden and the fourth copy was retained by the license dealer. The licenses usually arrived in Bozeman one week after they were remitted to Helena. Licenses are then keyed and entered into the Sportsman's Database. Samples for the previous month were then pulled and the questionnaires mailed around the 20th of the following month. For example, samples for August would be pulled and sent around the 20th of September.

Past surveys indicated that residents provide approximately 80% of the pressure (Gaffney 1975, McFarland 1989, McFarland 1991), therefore sampling was done on a 80/20 split between residents and nonresidents (i.e. proportional allocation). Actual numbers sent varied slightly from wave to wave (Table 2). Proportional allocation was used for determining sample sizes from wave to wave. For the "summer" waves 10,000 residents and nonresidents were sampled. In the "winter" the rate dropped to 5,000 residents and nonresidents. Since waves 1 and 2 had fewer license holders from which to sample, these two waves were sampled at a less intense level.

Table 2. Number of questionnaires sent for each wave by residency for 1993

Wave	Mailed Res	Nonres	Useable Res	Nonres	Returns Res	Nonres
1	325	26	315	25	272	17
2	4635	365	4437	334	2830	222
3	9270	730	8694	671	5358	421
4	9263	729	8689	667	5343	462
5	9266	730	8297	637	4868	446
6	9268	719	8384	638	5173	440
7	9268	721	8276	632	4984	414
8	9262	724	8181	646	5054	469
9	4637	359	4148	330	2800	235
10	4633	359	4105	320	2869	232
11	4630	365	4079	308	2809	230
12	4652	342	4137	294	2810	207
99		10000		8670		5234

Two survey questionnaires were used, one for residents and season nonresidents and the other for 2-day nonresidents. The resident/nonresident questionnaire (see appendix A for examples), included questions on: what water was fished; nearest landmark , town, or county; section of stream or river fished (taken from map on back of questionnaire); date fishing occurred; and number of days fished; and whether the fishing was primarily from shore, boat or ice. The 2-day questionnaire was the same basic design but included questions to ascertain if the respondent was a valid 2-day fishing permit holder and how many permits they bought. The survey also asked about their entire year of fishing versus a single month.

To ease the sorting process different colored forms were used for each wave and also for initial and remail mailings.

Remail questionnaires were mailed, to those individuals who had not yet responded, from two to four weeks after the initial mailing. Returns for each wave were monitored and when they slowed down to a few each day the remail was sent. Included in the remail was an explanation, (see appendix A for examples), a duplicate questionnaire and a return envelope. Returns were grouped and counted according to type of license, wave and mailing (initial or remail).

Phone surveys were made to resident anglers and nonresident 2-day license holders who had not responded in either the initial or remail

mail survey. The phoning was done for all waves. Data from this survey was used to determine if a nonresponse bias existed and to make adjustments if necessary. The formula used was:

$$A_{ij}=R_{ij}+\frac{P_{ij}}{M_{ij}}[1-R_{ij}]$$

where A_{ij} = Adjustment factor for nonresponse for the ith wave and jth residency

R_{ij} = Response rate for mail survey for ith wave and jth residency (response rate is the total number of returns divided by the total number of surveys mailed out minus the number of nondeliverable surveys)

P_{ij} = Phone rate of days fished per respondent for ith wave and jth residency

M_{ij} = Mail rate of days fished per respondent for ith wave and jth residency

Since no significant difference (P=.47, paired t-test=.75, d.f.=11) was found in response rates between mail and phone respondents the adjustment factors were all set to 1.0.

After all questionnaires were received those that had fished in Montana during the period in question were separated from those who said "no". The "yes" respondents were then hand coded and assigned a numeric code for each water fished. They were visually edited for accuracy and completeness.

All data were then keypunched with each day of fishing recorded as a single record. Edits were run to correct invalid water codes. FORTRAN computer programs were written to analyze the data and calculate fishing pressure and standard errors.

Estimates were made for individual waters based upon the formula:

$$P_j=\sum_{i=1}^{n}\left[\frac{E_{ij}*D_{ij}}{R_{ij}}\right]*A_{ij}$$

where P_j = Pressure for an individual water by the jth residency

E_{ij} = Number of eligible anglers for the ith wave and jth residency

D_{ij} = Days fished that particular water for the ith wave and jth wave

R_{ij} = Number of respondents from the survey for the ith wave and jth residency

A_{ij} = Adjustment factor for nonresponse for the ith wave and jth residency

n = number of waves in the estimate year or season
j = number of residency types (resident, nonresident, or total)

the variance was then calculated using

$$VAR(P_j) = \sum_{i=1}^{n} \left[\frac{E_{ij}^2 * VAR(D_{ij})}{R_{ij}} \right] * A_{ij}^2$$

Where P_j, E_{ij}, R_{ij}, D_{ij}, and A_{ij} are the save as above.

Pressure estimates between waves and residency were assumed to be independent so variances were summed to obtain total variances. The square root of the variance was taken and this number was reported as the error for fishing pressure.

RESULTS

1993 ANNUAL

Licensed anglers fishing on Montana waters exerted 2,578,495 angler days of pressure for the 1993 license year. Residents accounted for 1,964,464 angler days (76.2%) and nonresidents made up the remaining 614,031 angler days (23.8%). Individual water estimates sorted alphabetically are given in a separate report "Montana Statewide Angling Pressure 1993".

The pressure distributed between Fish, Wildlife and Parks regions (Figure 1) emphasizes the cold water fishery (Chart 1). Region 3 received the most angling pressure with 729,739 angler days (28.3%). Regions 4 and 1 were next in order with 510,699 angler days (19.8%) and 400,332 (15.5%) angler days respectively. Region 2 had 387,952 angler days (15.0%) while region 5 had 328,982 angler days of use (12.9%). The warm water regions of 6 and 7 were the lowest in pressure with 118,676 (4.6%) and 85,358 (3.3%) angler days respectively.

Angling in Montana in 1993 was directed toward trout. Salmonid waters accounted for 88.6% (2,284,225 angler days) of the statewide pressure while nonsalmonid waters accounted for 7.9% (204,665 angler days) of the pressure and undesignated waters accounted for 3.5% (89,605 angler days) of the pressure (Chart 2). An undesignated water is one that did not have a unique code to assign, and therefore water type could not be determined. This water was assigned a generic code based on drainage and county so angling pressure could be estimated.

Within salmonid waters, the streams received more pressure than the lakes, 57.7% versus 42.3%. The nonsalmonid lakes received more pressure than the nonsalmonid streams, 58.9% versus 41.1% respectively.

Salmonid angling dominated the pressure in regions 1, 2, 3, 4, and 5. Regions 6 and 7 were predominately nonsalmonid angling (Chart 3, Table 4).

Table 4. Angling pressure in angler days by region by water type for the 1993 angling year.

TOTAL PRESSURE ESTIMATES THROUGH SUMMATION

REG	WATER TYPE	------TOTALS----- PRESSURE	TRIPS	----RESIDENTS---- PRESSURE	TRIPS	--NON-RESIDENTS--- PRESSURE	TRIPS
1							
	SALMONID STREAM	150537.	3924.	115865.	2956.	34672.	968.
	SALMONID LAKE	224800.	5732.	166669.	4230.	58131.	1502.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	13934.	355.	13071.	336.	863.	19.
	UNDESIG STRM MGMT	4085.	120.	2942.	76.	1143.	44.
	UNDESIG LAKE MGMT	6976.	203.	6012.	166.	964.	37.
	REGIONAL PRESSURE ESTIMATES:	400332.	10334.	304559.	7764.	95773.	2570.
2							
	SALMONID STREAM	283759.	7438.	217520.	5617.	66239.	1821.
	SALMONID LAKE	94409.	2341.	80481.	1982.	13928.	359.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	109.	3.	109.	3.	0.	0.
	UNDESIG STRM MGMT	4512.	126.	3066.	85.	1446.	41.
	UNDESIG LAKE MGMT	5163.	136.	4562.	117.	601.	19.
	REGIONAL PRESSURE ESTIMATES:	387952.	10044.	305738.	7804.	82214.	2240.
3							
	SALMONID STREAM	472580.	12630.	272453.	6930.	200127.	5700.
	SALMONID LAKE	246121.	6028.	181292.	4475.	64829.	1553.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	6334.	181.	3567.	96.	2767.	85.
	UNDESIG LAKE MGMT	4704.	133.	4064.	107.	640.	26.
	REGIONAL PRESSURE ESTIMATES:	729739.	18972.	461376.	11608.	268363.	7364.
4							
	SALMONID STREAM	181579.	4907.	151674.	4059.	29905.	848.
	SALMONID LAKE	278370.	7125.	259213.	6601.	19157.	524.
	NONSALMONID STREAM	9162.	233.	8506.	217.	656.	16.
	NONSALMONID LAKE	20484.	495.	19581.	472.	903.	23.
	UNDESIG STRM MGMT	6864.	199.	5501.	148.	1363.	51.
	UNDESIG LAKE MGMT	14240.	385.	13340.	360.	900.	25.
	REGIONAL PRESSURE ESTIMATES:	510699.	13344.	457815.	11857.	52884.	1487.
5							
	SALMONID STREAM	216764.	5930.	154600.	3891.	62164.	2039.
	SALMONID LAKE	86310.	2189.	74697.	1834.	11613.	355.
	NONSALMONID STREAM	14981.	400.	14486.	384.	495.	16.
	NONSALMONID LAKE	800.	22.	800.	22.	0.	0.
	UNDESIG STRM MGMT	4305.	90.	3850.	73.	455.	17.
	UNDESIG LAKE MGMT	5822.	180.	4280.	122.	1542.	58.
	REGIONAL PRESSURE ESTIMATES:	328982.	8811.	252713.	6326.	76269.	2485.

Table 4. Angling pressure in angler days by region by water type for the 1993 angling year (continued).

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
6							
	SALMONID STREAM	9159.	249.	7864.	219.	1295.	30.
	SALMONID LAKE	29759.	779.	27656.	738.	2103.	41.
	NONSALMONID STREAM	22417.	709.	19972.	634.	2445.	75.
	NONSALMONID LAKE	52204.	1401.	44742.	1196.	7462.	205.
	UNDESIG STRM MGMT	1381.	42.	1256.	37.	125.	5.
	UNDESIG LAKE MGMT	3756.	95.	3756.	95.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	118676.	3275.	105246.	2919.	13430.	356.
7							
	SALMONID STREAM	2908.	85.	2509.	74.	399.	11.
	SALMONID LAKE	7170.	183.	7045.	178.	125.	5.
	NONSALMONID STREAM	37552.	1078.	35060.	986.	2492.	92.
	NONSALMONID LAKE	33022.	1005.	21498.	676.	11524.	329.
	UNDESIG STRM MGMT	1224.	33.	1099.	28.	125.	5.
	UNDESIG LAKE MGMT	3482.	86.	3407.	83.	75.	3.
	REGIONAL PRESSURE ESTIMATES:	85358.	2470.	70618.	2025.	14740.	445.
TOTAL							
	SALMONID STREAM	1317286.	35163.	922485.	23746.	394801.	11417.
	SALMONID LAKE	966939.	24377.	797053.	20038.	169886.	4339.
	NONSALMONID STREAM	84112.	2420.	78024.	2221.	6088.	199.
	NONSALMONID LAKE	120553.	3281.	99801.	2705.	20752.	576.
	UNDESIG STRM MGMT	45462.	1227.	27680.	659.	17782.	568.
	UNDESIG LAKE MGMT	44143.	1218.	39421.	1050.	4722.	168.
	STATEWIDE PRESSURE ESTIMATES:	2578495.	67686.	1964464.	50419.	614031.	17267.

Region 3 had the largest angling pressure for salmonid streams (472,580 angler days) while region 4 had the largest angling pressure for salmonid lakes (278,370 angler days). Nonsalmonid stream fishing pressure was largest in region 7 (37,552 angler days), while the nonsalmonid lake angling pressure was largest in region 6 (52,204 angling days).

The majority of angling pressure in 1993 in all regions was exerted by residents (Chart 4). The percent of angling pressure by residents for each region was: region 1 - 76.1%, region 2 - 78.8%, region 3 - 63.2%, region 4 - 89.6%, region 5 - 76.8%, region 6 - 88.7%, and region 7 - 82.7%.

July (wave 5) was, overall, the peak fishing period, while November (wave 9) was the least fished period during the year (Table 5). Both residents and nonresident season license holders preferred to fish during July while residents fished the least in November and nonresident season license holders fished the least in March (wave 1). The majority of the nonresident pressure (52.6%) was exerted by the 2-day license holders. Since these anglers were sampled once at the end of the license year the pressure could not be classified into waves although it can logically be assigned to the summer season.

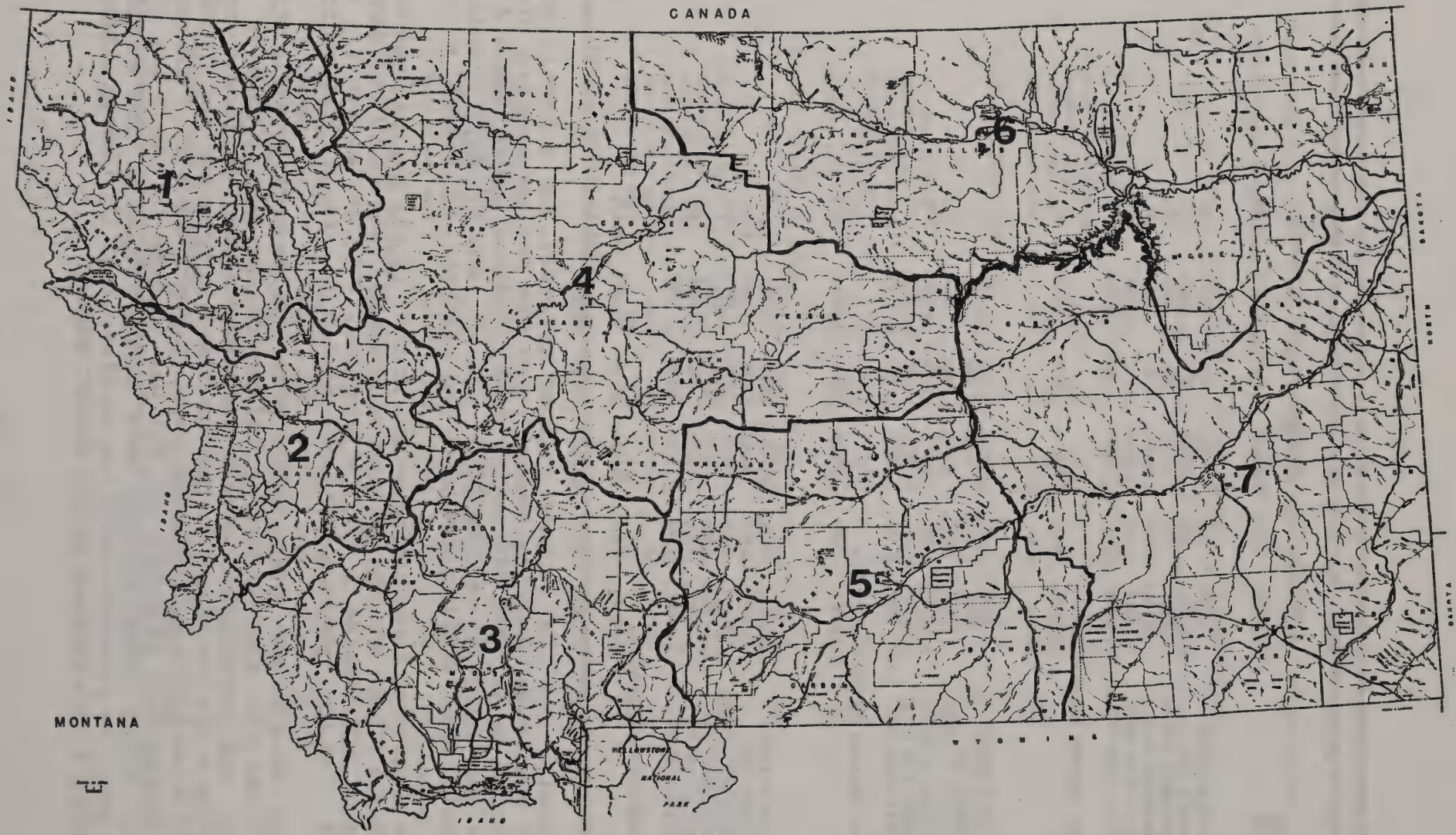

Figure 1. Map of the State of Montana showing the Department of Fish, Wildlife & Parks Regional boundaries.

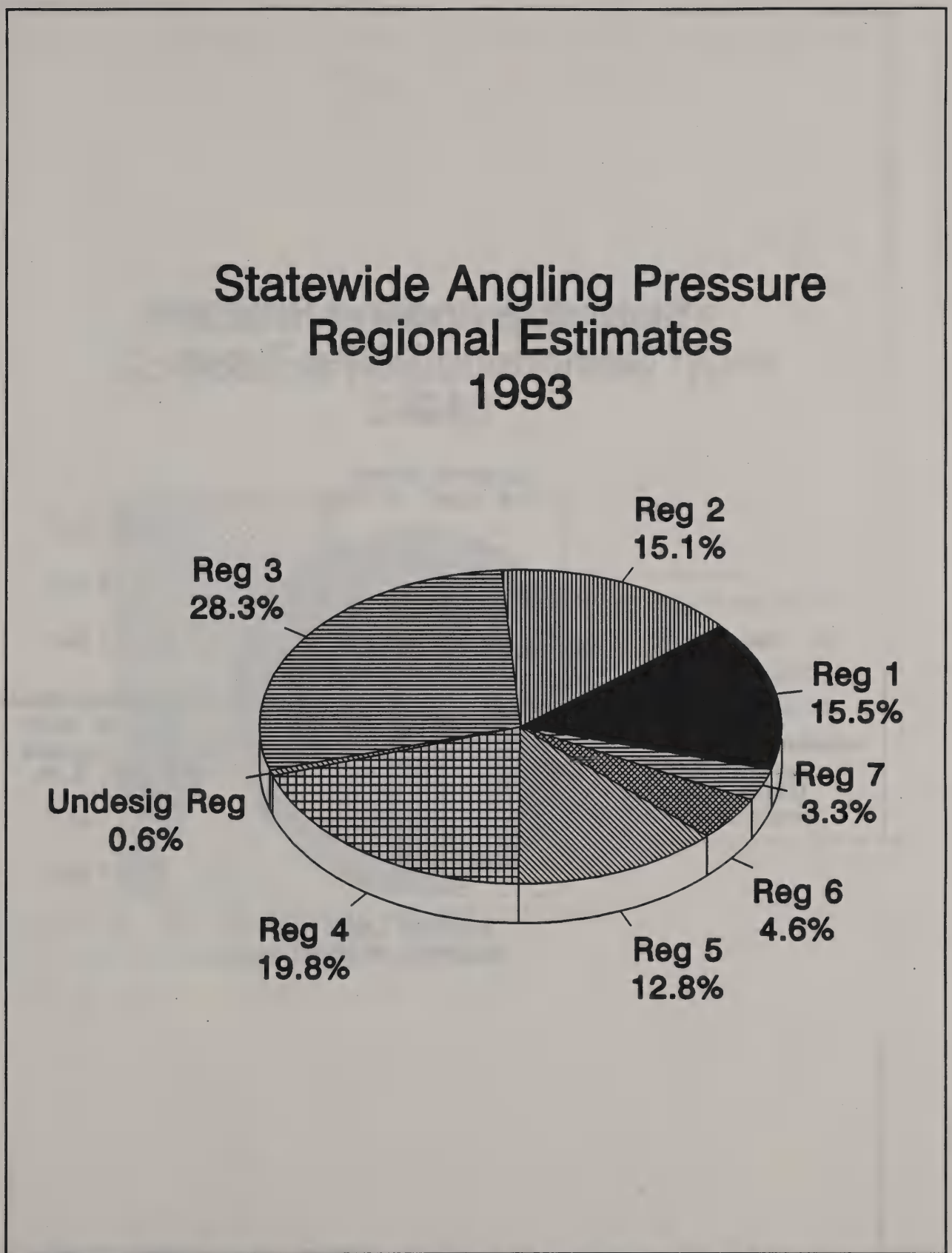

Chart 1. Percent of angling pressure by region for 1993.

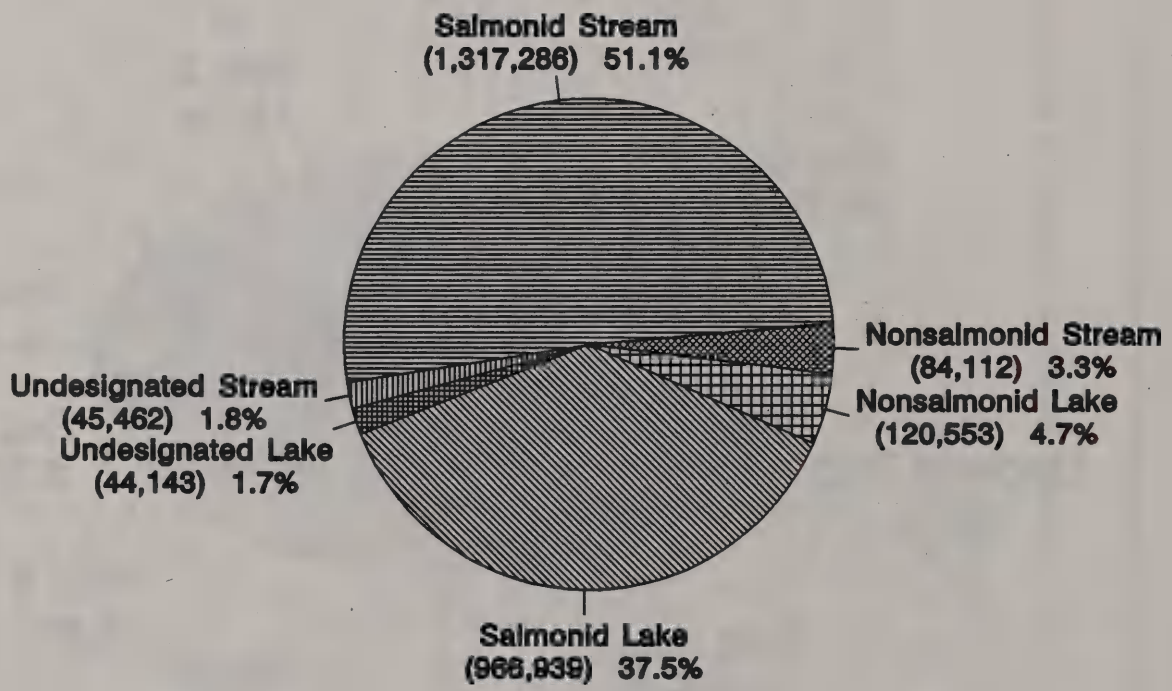

Chart 2. Angling pressure and percentage by type of water for 1993.

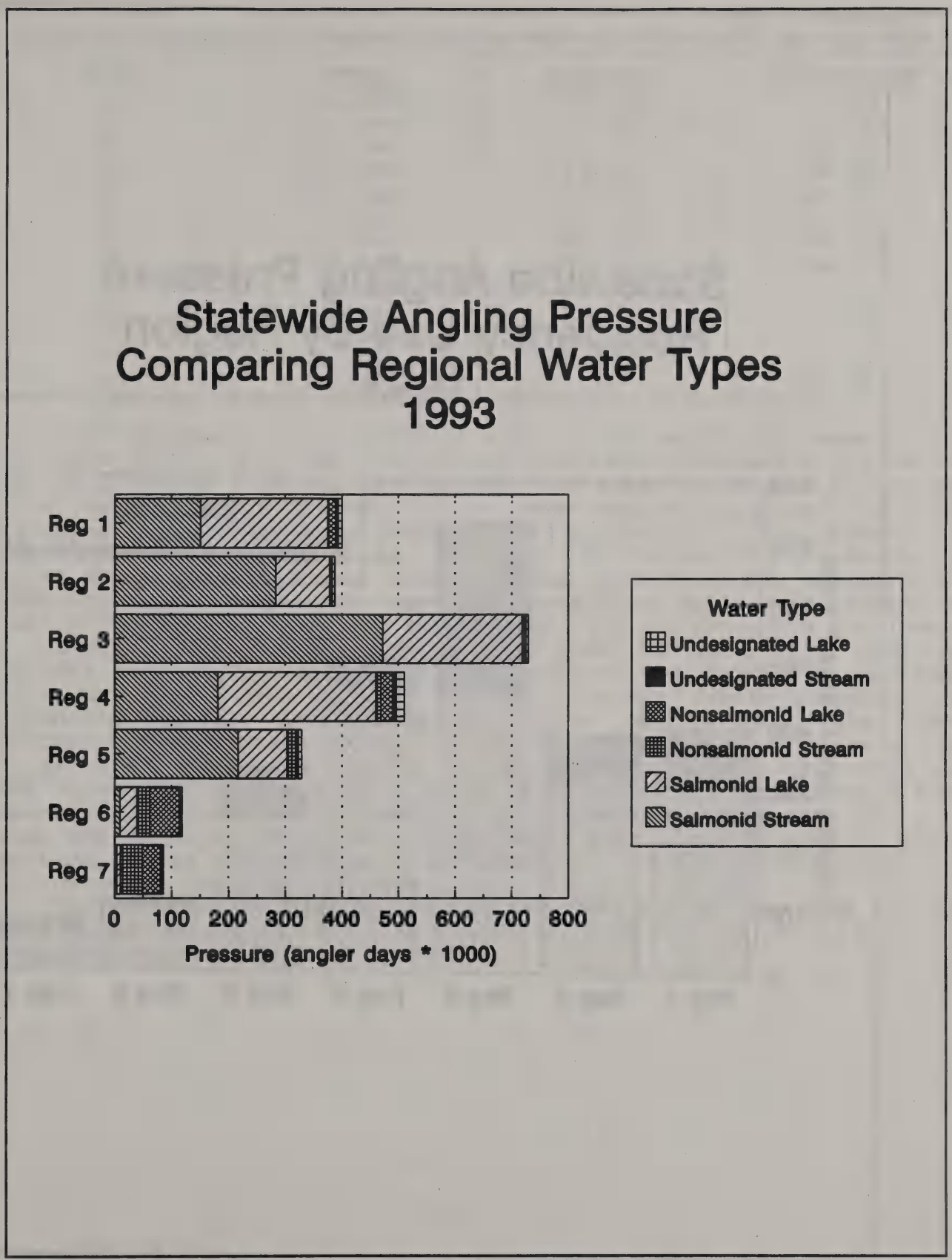

Chart 3. Angling pressure by region by water for 1993.

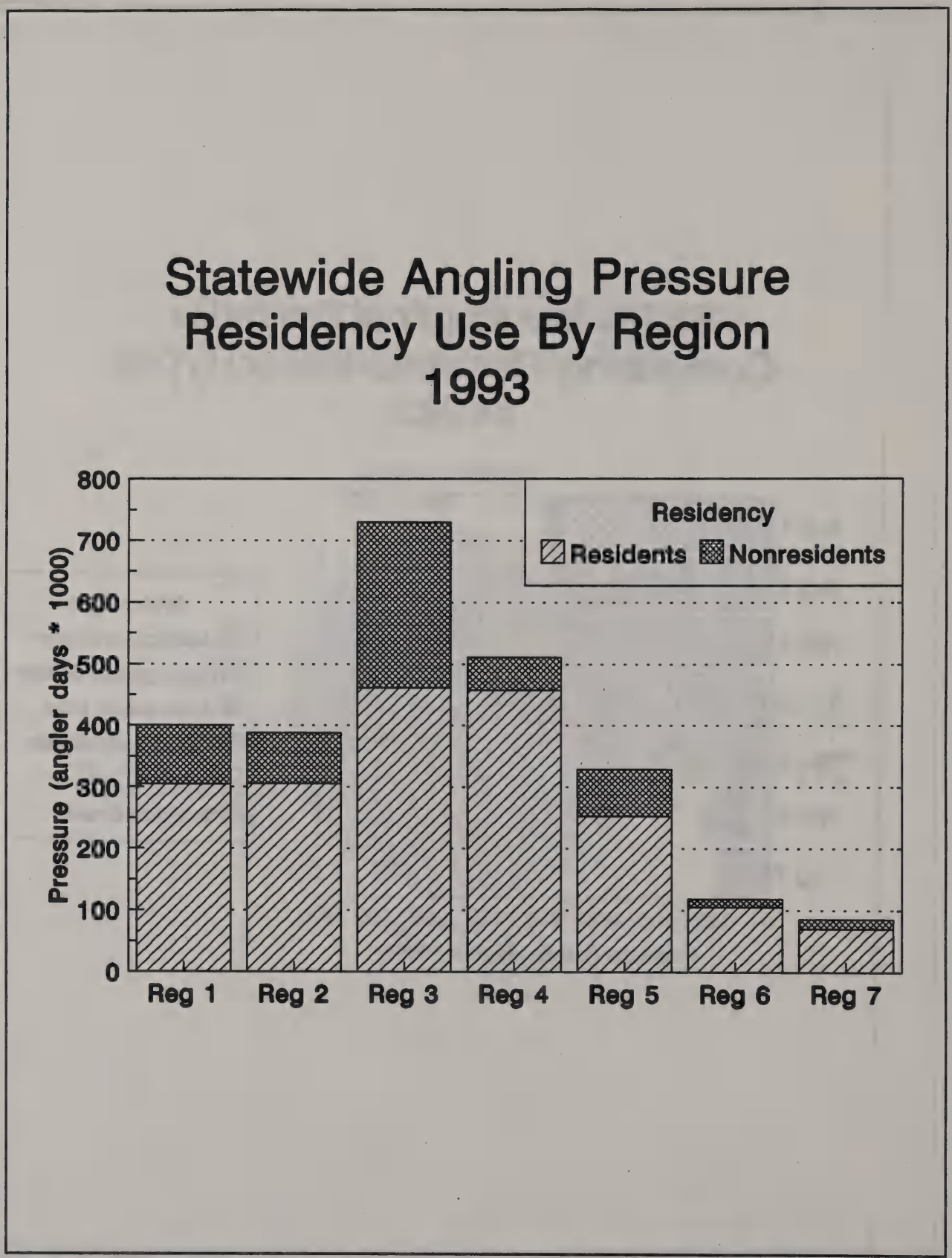

Chart 4. Angling pressure by region by residency for 1993.

Table 5. Pressure in angler days by wave for the 1993 survey year.

WAVE	TOTAL	RESIDENT	NONRESIDENT
1	82,933	79,170	3,763
2	114,374	102,506	11,868
3	268,161	242,405	25,756
4	328,336	293,681	34,655
5	462,047	355,536	106,511
6	403,202	332,577	70,625
7	237,547	188,151	49,396
8	133,246	109,241	24,005
9	58,695	52,528	6,167
10	72,234	65,533	6,701
11	73,946	69,188	4,758
12	80,538	73,955	6,583
99	263,259		263,259

Angling pressure was summarized by the 22 major drainages within the state (Table 6). The lower Clark Fork River drainage contains the angling pressure from all the streams and lakes below the Bitterroot River, excluding the pressure from those waters contained in other drainages listed (Flathead, Kootenai, and Bitterroot). The Upper Clark Fork River drainage, likewise, contains all the angling pressure for waters above the Bitterroot River drainage excluding the pressure for those drainages listed. The upper Flathead River drainage contains the South Fork Flathead River drainage and all waters above the confluence of the South Fork Flathead River. The lower Flathead River drainage includes those waters below the confluence of the South Fork Flathead River including Flathead Lake and those waters (where pressure was obtainable) on the Kootenai-Salish Indian reservation. The lower Missouri River drainage covers all waters below the confluence of the Marias River, while the upper Missouri River drainage incorporates the area above the Marias River, again excluding those drainages listed separately. The lower Yellowstone River drainage represents the area below the mouth of the Bighorn River while the upper Yellowstone River drainage covers the Bighorn River drainage and all waters above the confluence of the Bighorn River.

The pressure by drainage ranged from 449,057 angler days for the Upper Missouri River drainage to 634 angler days for the Little Missouri River drainage.

Table 6. Angling pressure in angler days by drainage by water type for the 1993 angling year Mar '93 through Feb '94

DRAIN WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BEAVERHEAD DR						
SALMONID STREAM	36630.	1035.	18849.	516.	17781.	519.
SALMONID LAKE	57765.	1248.	34731.	730.	23034.	518.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	106.	3.	81.	2.	25.	1.
UNDESIG LAKE MGMT	703.	21.	509.	13.	194.	8.
DRAINAGE PRESSURE ESTIMATES:	95204.	2307.	54170.	1261.	41034.	1046.
BIG HOLE DR						
SALMONID STREAM	74602.	2051.	49071.	1330.	25531.	721.
SALMONID LAKE	7412.	207.	5584.	159.	1828.	48.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	723.	21.	623.	17.	100.	4.
UNDESIG LAKE MGMT	580.	16.	530.	14.	50.	2.
DRAINAGE PRESSURE ESTIMATES:	83317.	2295.	55808.	1520.	27509.	775.
BITTERROOT DR						
SALMONID STREAM	96371.	2423.	76323.	1842.	20048.	581.
SALMONID LAKE	5265.	159.	4752.	141.	513.	18.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	83.	2.	83.	2.	0.	0.
UNDESIG STRM MGMT	1648.	42.	840.	24.	808.	18.
UNDESIG LAKE MGMT	1441.	42.	1040.	31.	401.	11.
DRAINAGE PRESSURE ESTIMATES:	104808.	2668.	83038.	2040.	21770.	628.
BLACKFOOT DR						
SALMONID STREAM	42849.	1133.	33884.	890.	8965.	243.
SALMONID LAKE	26192.	701.	23159.	626.	3033.	75.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	1421.	38.	1108.	28.	313.	10.
UNDESIG LAKE MGMT	712.	22.	637.	19.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	71174.	1894.	58788.	1563.	12386.	331.
LOWER CLARK FORK DR						
SALMONID STREAM	105654.	2823.	77215.	2055.	28439.	768.
SALMONID LAKE	30455.	796.	26574.	695.	3881.	101.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	1517.	46.	1192.	33.	325.	13.
UNDESIG LAKE MGMT	1081.	31.	870.	23.	211.	8.
DRAINAGE PRESSURE ESTIMATES:	138707.	3696.	105851.	2806.	32856.	890.

Table 6. Angling pressure in angler days by drainage by water type for the 1993 angling year Mar '93 through Feb '94 (continued)

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER CLARK FORK DR						
SALMONID STREAM	68200.	1903.	52768.	1476.	15432.	427.
SALMONID LAKE	58911.	1377.	48867.	1122.	10044.	255.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	26.	1.	26.	1.	0.	0.
UNDESIG STRM MGMT	521.	15.	471.	13.	50.	2.
UNDESIG LAKE MGMT	2999.	71.	2874.	66.	125.	5.
DRAINAGE PRESSURE ESTIMATES:	130657.	3367.	105006.	2678.	25651.	689.
LOWER FLATHEAD DR						
SALMONID STREAM	53094.	1343.	43177.	1081.	9917.	262.
SALMONID LAKE	132889.	3449.	101125.	2620.	31764.	829.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	11783.	305.	11348.	296.	435.	9.
UNDESIG STRM MGMT	1942.	54.	1374.	33.	568.	21.
UNDESIG LAKE MGMT	4146.	116.	3818.	104.	328.	12.
DRAINAGE PRESSURE ESTIMATES:	203854.	5267.	160842.	4134.	43012.	1133.
UPPER FLATHEAD DR						
SALMONID STREAM	24733.	641.	16205.	409.	8528.	232.
SALMONID LAKE	9637.	254.	7749.	193.	1888.	61.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	638.	20.	438.	12.	200.	8.
UNDESIG LAKE MGMT	1273.	38.	1123.	32.	150.	6.
DRAINAGE PRESSURE ESTIMATES:	36281.	953.	25515.	646.	10766.	307.
GALLATIN DR						
SALMONID STREAM	85368.	2168.	57008.	1350.	28360.	818.
SALMONID LAKE	13520.	383.	11553.	319.	1967.	64.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	568.	17.	162.	4.	406.	13.
UNDESIG LAKE MGMT	522.	17.	426.	13.	96.	4.
DRAINAGE PRESSURE ESTIMATES:	99978.	2585.	69149.	1686.	30829.	899.
JEFFERSON DR						
SALMONID STREAM	23453.	603.	20089.	502.	3364.	101.
SALMONID LAKE	10307.	258.	9684.	237.	623.	21.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	676.	15.	463.	12.	213.	3.
UNDESIG LAKE MGMT	919.	26.	844.	23.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	35355.	902.	31080.	774.	4275.	128.

Table 6. Angling pressure in angler days by drainage by water type for the 1993 angling year Mar '93 through Feb '94 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
KOOTENAI DR							
	SALMONID STREAM	43616.	1103.	34034.	827.	9582.	276.
	SALMONID LAKE	55714.	1333.	34803.	812.	20911.	521.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	2151.	50.	1723.	40.	428.	10.
	UNDESIG STRM MGMT	1023.	34.	698.	21.	325.	13.
	UNDESIG LAKE MGMT	606.	21.	331.	10.	275.	11.
	DRAINAGE PRESSURE ESTIMATES:	103110.	2541.	71589.	1710.	31521.	831.
LITTLE MISSOURI DR							
	SALMONID STREAM	0.	0.	0.	0.	0.	0.
	SALMONID LAKE	377.	12.	252.	7.	125.	5.
	NONSALMONID STREAM	115.	4.	115.	4.	0.	0.
	NONSALMONID LAKE	142.	4.	106.	3.	36.	1.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	634.	20.	473.	14.	161.	6.
MADISON DR							
	SALMONID STREAM	150206.	4178.	54027.	1462.	96179.	2716.
	SALMONID LAKE	53378.	1293.	21906.	557.	31472.	736.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	1389.	35.	843.	22.	546.	13.
	UNDESIG LAKE MGMT	1181.	29.	1106.	26.	75.	3.
	DRAINAGE PRESSURE ESTIMATES:	206154.	5535.	77882.	2067.	128272.	3468.
MARIAS DR							
	SALMONID STREAM	7344.	214.	6933.	201.	411.	13.
	SALMONID LAKE	36188.	945.	34823.	910.	1365.	35.
	NONSALMONID STREAM	409.	7.	409.	7.	0.	0.
	NONSALMONID LAKE	16171.	389.	15343.	369.	828.	20.
	UNDESIG STRM MGMT	1913.	47.	1788.	42.	125.	5.
	UNDESIG LAKE MGMT	2164.	56.	2089.	53.	75.	3.
	DRAINAGE PRESSURE ESTIMATES:	64189.	1658.	61385.	1582.	2804.	76.
MILK DR							
	SALMONID STREAM	4093.	108.	3222.	92.	871.	16.
	SALMONID LAKE	27463.	709.	25456.	672.	2007.	37.
	NONSALMONID STREAM	6200.	197.	5872.	186.	328.	11.
	NONSALMONID LAKE	9194.	222.	8176.	204.	1018.	18.
	UNDESIG STRM MGMT	868.	32.	442.	15.	426.	17.
	UNDESIG LAKE MGMT	3759.	96.	3447.	92.	312.	4.
	DRAINAGE PRESSURE ESTIMATES:	51577.	1364.	46615.	1261.	4962.	103.

Table 6. Angling pressure in angler days by drainage by water type for the 1993 angling year Mar '93 through Feb '94 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER MISSOURI DR							
	SALMONID STREAM	20649.	569.	18768.	506.	1881.	63.
	SALMONID LAKE	19910.	512.	19533.	499.	377.	13.
	NONSALMONID STREAM	20616.	621.	18073.	545.	2543.	76.
	NONSALMONID LAKE	44521.	1211.	38052.	1023.	6469.	188.
	UNDESIG STRM MGMT	2297.	66.	2197.	62.	100.	4.
	UNDESIG LAKE MGMT	3323.	87.	3248.	84.	75.	3.
	DRAINAGE PRESSURE ESTIMATES:	111316.	3066.	99871.	2719.	11445.	347.
UPPER MISSOURI DR							
	SALMONID STREAM	158057.	4223.	131565.	3480.	26492.	743.
	SALMONID LAKE	275971.	7072.	253970.	6471.	22001.	601.
	NONSALMONID STREAM	5557.	151.	5202.	142.	355.	9.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	2432.	72.	1795.	50.	637.	22.
	UNDESIG LAKE MGMT	7040.	190.	6865.	183.	175.	7.
	DRAINAGE PRESSURE ESTIMATES:	449057.	11708.	399397.	10326.	49660.	1382.
MUSSELSHELL DR							
	SALMONID STREAM	12659.	350.	11684.	316.	975.	34.
	SALMONID LAKE	28384.	696.	27981.	682.	403.	14.
	NONSALMONID STREAM	40.	1.	40.	1.	0.	0.
	NONSALMONID LAKE	2400.	69.	2350.	67.	50.	2.
	UNDESIG STRM MGMT	840.	27.	640.	19.	200.	8.
	UNDESIG LAKE MGMT	1342.	39.	1317.	38.	25.	1.
	DRAINAGE PRESSURE ESTIMATES:	45665.	1182.	44012.	1123.	1653.	59.
ST MARY DR							
	SALMONID STREAM	124.	3.	124.	3.	0.	0.
	SALMONID LAKE	3187.	78.	3039.	75.	148.	3.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	25.	1.	25.	1.	0.	0.
	UNDESIG STRM MGMT	90.	3.	40.	1.	50.	2.
	UNDESIG LAKE MGMT	453.	12.	403.	10.	50.	2.
	DRAINAGE PRESSURE ESTIMATES:	3879.	97.	3631.	90.	248.	7.
SUN DR							
	SALMONID STREAM	10545.	288.	8398.	224.	2147.	64.
	SALMONID LAKE	19424.	487.	18931.	470.	493.	17.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	572.	11.	572.	11.	0.	0.
	UNDESIG STRM MGMT	474.	13.	474.	13.	0.	0.
	UNDESIG LAKE MGMT	1313.	41.	1125.	36.	188.	5.
	DRAINAGE PRESSURE ESTIMATES:	32328.	840.	29500.	754.	2828.	86.

Table 6. Angling pressure in angler days by drainage by water type for the 1993 angling year Mar '93 through Feb '94 (continued)

DRAIN WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER YELLOWSTONE DR						
SALMONID STREAM	2908.	85.	2509.	74.	399.	11.
SALMONID LAKE	6695.	168.	6695.	168.	0.	0.
NONSALMONID STREAM	36194.	1039.	33827.	952.	2367.	87.
NONSALMONID LAKE	32685.	994.	21197.	666.	11488.	328.
UNDESIG STRM MGMT	1144.	31.	1019.	26.	125.	5.
UNDESIG LAKE MGMT	3132.	76.	3057.	73.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	82758.	2393.	68304.	1959.	14454.	434.
UPPER YELLOWSTONE DR						
SALMONID STREAM	296131.	7919.	206632.	5110.	89499.	2809.
SALMONID LAKE	87895.	2240.	75886.	1873.	12009.	367.
NONSALMONID STREAM	14981.	400.	14486.	384.	495.	16.
NONSALMONID LAKE	800.	22.	800.	22.	0.	0.
UNDESIG STRM MGMT	6475.	160.	4593.	94.	1882.	66.
UNDESIG LAKE MGMT	5454.	171.	3762.	107.	1692.	64.
DRAINAGE PRESSURE ESTIMATES:	411736.	10912.	306159.	7590.	105577.	3322.
TOTAL						
SALMONID STREAM	1317286.	35163.	922485.	23746.	394801.	11417.
SALMONID LAKE	966939.	24377.	797053.	20038.	169886.	4339.
NONSALMONID STREAM	84112.	2420.	78024.	2221.	6088.	199.
NONSALMONID LAKE	120553.	3281.	99801.	2705.	20752.	576.
UNDESIG STRM MGMT	45462.	1227.	27680.	659.	17782.	568.
UNDESIG LAKE MGMT	44143.	1218.	39421.	1050.	4722.	168.
STATEWIDE PRESSURE ESTIMATES:	2578495.	67686.	1964464.	50419.	614031.	17267.

1993 SUMMER

The "summer" season for angling in Montana is considered as that period of the year between the first of May through the end of September. In 1991 1,962,554 (76.1%) days of angling pressure occurred during this period (Table 7). Percentages of angling pressure within the regions for the summer period was very similar to the entire year ranging from 73.9% for region 4 to 82.7% for region 7.

Residents accounted for 72.0% of the "summer" angling pressure (1,412,362 angling days). Within the regions the residents comprised anywhere from as high as 87.3% of the "summer" angling pressure in region 6 to as low as 57.6% of the pressure in region 3.

Table 7. Angling pressure in angler days by region by water type for the "summer" season of May '93 through September '93

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
1							
	SALMONID STREAM	121022.	3372.	89541.	2458.	31481.	914.
	SALMONID LAKE	178012.	4943.	122422.	3467.	55590.	1476.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	8521.	248.	7798.	230.	723.	18.
	UNDESIG STRM MGMT	3364.	108.	2221.	64.	1143.	44.
	UNDESIG LAKE MGMT	5537.	172.	4573.	135.	964.	37.
	REGIONAL PRESSURE ESTIMATES:	316456.	8843.	226555.	6354.	89901.	2489.
2							
	SALMONID STREAM	221324.	6189.	160961.	4514.	60363.	1675.
	SALMONID LAKE	73530.	1993.	59624.	1635.	13906.	358.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	83.	2.	83.	2.	0.	0.
	UNDESIG STRM MGMT	4330.	121.	2884.	80.	1446.	41.
	UNDESIG LAKE MGMT	4078.	114.	3477.	95.	601.	19.
	REGIONAL PRESSURE ESTIMATES:	303345.	8419.	227029.	6326.	76316.	2093.
3							
	SALMONID STREAM	370852.	10732.	193687.	5374.	177165.	5358.
	SALMONID LAKE	168269.	4725.	115911.	3331.	52358.	1394.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	5850.	173.	3336.	92.	2514.	81.
	UNDESIG LAKE MGMT	3705.	110.	3065.	84.	640.	26.
	REGIONAL PRESSURE ESTIMATES:	548676.	15740.	315999.	8881.	232677.	6859.
4							
	SALMONID STREAM	140696.	4073.	112703.	3254.	27993.	819.
	SALMONID LAKE	199749.	5745.	182560.	5244.	17189.	501.
	NONSALMONID STREAM	5965.	168.	5309.	152.	656.	16.
	NONSALMONID LAKE	14708.	418.	13805.	395.	903.	23.
	UNDESIG STRM MGMT	5545.	176.	4182.	125.	1363.	51.
	UNDESIG LAKE MGMT	10614.	303.	9714.	278.	900.	25.
	REGIONAL PRESSURE ESTIMATES:	377277.	10883.	328273.	9448.	49004.	1435.
5							
	SALMONID STREAM	163220.	4806.	107092.	2968.	56128.	1838.
	SALMONID LAKE	62118.	1769.	51924.	1445.	10194.	324.
	NONSALMONID STREAM	9634.	283.	9139.	267.	495.	16.
	NONSALMONID LAKE	659.	21.	659.	21.	0.	0.
	UNDESIG STRM MGMT	2547.	71.	2092.	54.	455.	17.
	UNDESIG LAKE MGMT	5354.	168.	3855.	112.	1499.	56.
	REGIONAL PRESSURE ESTIMATES:	243532.	7118.	174761.	4867.	68771.	2251.

Table 7. Angling pressure in angler days by region by water type for the "summer" season of May '93 through September '93 (continued)

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
6							
	SALMONID STREAM	7600.	210.	6305.	180.	1295.	30.
	SALMONID LAKE	22216.	646.	21093.	612.	1123.	34.
	NONSALMONID STREAM	18148.	591.	15703.	516.	2445.	75.
	NONSALMONID LAKE	39289.	1151.	32710.	960.	6579.	191.
	UNDESIG STRM MGMT	1243.	38.	1118.	33.	125.	5.
	UNDESIG LAKE MGMT	2819.	82.	2819.	82.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	91315.	2718.	79748.	2383.	11567.	335.
7							
	SALMONID STREAM	2699.	81.	2300.	70.	399.	11.
	SALMONID LAKE	4651.	135.	4526.	130.	125.	5.
	NONSALMONID STREAM	31152.	940.	28703.	850.	2449.	90.
	NONSALMONID LAKE	28655.	903.	18751.	609.	9904.	294.
	UNDESIG STRM MGMT	1224.	33.	1099.	28.	125.	5.
	UNDESIG LAKE MGMT	2178.	63.	2103.	60.	75.	3.
	REGIONAL PRESSURE ESTIMATES:	70559.	2155.	57482.	1747.	13077.	408.
TOTAL							
	SALMONID STREAM	1027413.	29463.	672589.	18818.	354824.	10645.
	SALMONID LAKE	708545.	19956.	558060.	15864.	150485.	4092.
	NONSALMONID STREAM	64899.	1982.	58854.	1785.	6045.	197.
	NONSALMONID LAKE	91915.	2743.	73806.	2217.	18109.	526.
	UNDESIG STRM MGMT	35497.	1088.	19447.	542.	16050.	546.
	UNDESIG LAKE MGMT	34285.	1012.	29606.	846.	4679.	166.
	STATEWIDE PRESSURE ESTIMATES:	1962554.	56244.	1412362.	40072.	550192.	16172.

"Summer" angling pressure by drainage (Table 8) ranged from 327,297 angler days for the upper Missouri River drainage to 608 angler days for the Little Missouri River drainage.

Angling pressure for residents by drainage ranged from a low of 33.4% for the Madison River drainage to a high of 95.0% for the Musselshell drainage.

Table 8. Angling pressure in angler days by drainage by water type for the 1993 "summer" angling season May '93 through September '93

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BEAVERHEAD DR							
	SALMONID STREAM	29878.	891.	13740.	395.	16138.	496.
	SALMONID LAKE	33669.	919.	16501.	471.	17168.	448.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	106.	3.	81.	2.	25.	1.
	UNDESIG LAKE MGMT	703.	21.	509.	13.	194.	8.
	DRAINAGE PRESSURE ESTIMATES:						
		64356.	1834.	30831.	881.	33525.	953.
BIG HOLE DR							
	SALMONID STREAM	65243.	1870.	42289.	1189.	22954.	681.
	SALMONID LAKE	6485.	173.	4657.	125.	1828.	48.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	697.	20.	597.	16.	100.	4.
	UNDESIG LAKE MGMT	312.	9.	262.	7.	50.	2.
	DRAINAGE PRESSURE ESTIMATES:						
		72737.	2072.	47805.	1337.	24932.	735.
BITTERROOT DR							
	SALMONID STREAM	69771.	1957.	51212.	1411.	18559.	546.
	SALMONID LAKE	4363.	124.	3850.	106.	513.	18.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	83.	2.	83.	2.	0.	0.
	UNDESIG STRM MGMT	1596.	40.	788.	22.	808.	18.
	UNDESIG LAKE MGMT	1251.	36.	850.	25.	401.	11.
	DRAINAGE PRESSURE ESTIMATES:						
		77064.	2159.	56783.	1566.	20281.	593.
BLACKFOOT DR							
	SALMONID STREAM	36000.	993.	27254.	758.	8746.	235.
	SALMONID LAKE	21397.	596.	18386.	522.	3011.	74.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	1291.	35.	978.	25.	313.	10.
	UNDESIG LAKE MGMT	556.	18.	481.	15.	75.	3.
	DRAINAGE PRESSURE ESTIMATES:						
		59244.	1642.	47099.	1320.	12145.	322.
LOWER CLARK FORK DR							
	SALMONID STREAM	85281.	2385.	59832.	1696.	25449.	689.
	SALMONID LAKE	25987.	718.	22429.	623.	3558.	95.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	1301.	41.	976.	28.	325.	13.
	UNDESIG LAKE MGMT	951.	28.	740.	20.	211.	8.
	DRAINAGE PRESSURE ESTIMATES:						
		113520.	3172.	83977.	2367.	29543.	805.

Table 8. Angling pressure in angler days by drainage by water type for the 1993 "summer" angling season May '93 through September '93 (continued)

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER CLARK FORK DR						
SALMONID STREAM	54976.	1584.	40899.	1187.	14077.	397.
SALMONID LAKE	44404.	1182.	34360.	927.	10044.	255.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	521.	15.	471.	13.	50.	2.
UNDESIG LAKE MGMT	2311.	61.	2186.	56.	125.	5.
DRAINAGE PRESSURE ESTIMATES:	102212.	2842.	77916.	2183.	24296.	659.
LOWER FLATHEAD DR						
SALMONID STREAM	38236.	1073.	30300.	840.	7936.	233.
SALMONID LAKE	104561.	2919.	73709.	2099.	30852.	820.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	7346.	215.	6911.	206.	435.	9.
UNDESIG STRM MGMT	1518.	48.	950.	27.	568.	21.
UNDESIG LAKE MGMT	2905.	90.	2577.	78.	328.	12.
DRAINAGE PRESSURE ESTIMATES:	154566.	4345.	114447.	3250.	40119.	1095.
UPPER FLATHEAD DR						
SALMONID STREAM	23564.	617.	15036.	385.	8528.	232.
SALMONID LAKE	8147.	229.	6259.	168.	1888.	61.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	638.	20.	438.	12.	200.	8.
UNDESIG LAKE MGMT	1118.	34.	968.	28.	150.	6.
DRAINAGE PRESSURE ESTIMATES:	33467.	900.	22701.	593.	10766.	307.
GALLATIN DR						
SALMONID STREAM	61113.	1711.	35466.	951.	25647.	760.
SALMONID LAKE	10807.	327.	8910.	264.	1897.	63.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	455.	14.	162.	4.	293.	10.
UNDESIG LAKE MGMT	393.	12.	297.	8.	96.	4.
DRAINAGE PRESSURE ESTIMATES:	72768.	2064.	44835.	1227.	27933.	837.
JEFFERSON DR						
SALMONID STREAM	17261.	499.	14182.	400.	3079.	99.
SALMONID LAKE	5870.	185.	5317.	165.	553.	20.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	595.	14.	382.	11.	213.	3.
UNDESIG LAKE MGMT	894.	25.	819.	22.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	24620.	723.	20700.	598.	3920.	125.

Table 8. Angling pressure in angler days by drainage by water type for the 1993 "summer" angling season May '93 through September '93 (continued)

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
KOOTENAI DR						
SALMONID STREAM	34739.	959.	26190.	702.	8549.	257.
SALMONID LAKE	42537.	1164.	22932.	654.	19605.	510.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	1175.	33.	887.	24.	288.	9.
UNDESIG STRM MGMT	942.	33.	617.	20.	325.	13.
UNDESIG LAKE MGMT	563.	20.	288.	9.	275.	11.
DRAINAGE PRESSURE ESTIMATES:	79956.	2209.	50914.	1409.	29042.	800.
LITTLE MISSOURI DR						
SALMONID STREAM	0.	0.	0.	0.	0.	0.
SALMONID LAKE	351.	11.	226.	6.	125.	5.
NONSALMONID STREAM	115.	4.	115.	4.	0.	0.
NONSALMONID LAKE	142.	4.	106.	3.	36.	1.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	608.	19.	447.	13.	161.	6.
MADISON DR						
SALMONID STREAM	123548.	3638.	38016.	1083.	85532.	2555.
SALMONID LAKE	42168.	1112.	16448.	456.	25720.	656.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	1389.	35.	843.	22.	546.	13.
UNDESIG LAKE MGMT	786.	24.	711.	21.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	167891.	4809.	56018.	1582.	111873.	3227.
MARIAS DR						
SALMONID STREAM	5833.	177.	5422.	164.	411.	13.
SALMONID LAKE	25620.	739.	24543.	706.	1077.	33.
NONSALMONID STREAM	65.	2.	65.	2.	0.	0.
NONSALMONID LAKE	12292.	346.	11464.	326.	828.	20.
UNDESIG STRM MGMT	1105.	37.	980.	32.	125.	5.
UNDESIG LAKE MGMT	1273.	38.	1198.	35.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	46188.	1339.	43672.	1265.	2516.	74.
MILK DR						
SALMONID STREAM	3291.	85.	2420.	69.	871.	16.
SALMONID LAKE	20403.	588.	19376.	558.	1027.	30.
NONSALMONID STREAM	4153.	134.	3825.	123.	328.	11.
NONSALMONID LAKE	6296.	170.	5278.	152.	1018.	18.
UNDESIG STRM MGMT	816.	30.	390.	13.	426.	17.
UNDESIG LAKE MGMT	3061.	86.	2749.	82.	312.	4.
DRAINAGE PRESSURE ESTIMATES:	38020.	1093.	34038.	997.	3982.	96.

Table 8. Angling pressure in angler days by drainage by water type for the 1993 "summer" angling season May '93 through September '93 (continued)

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER MISSOURI DR						
SALMONID STREAM	16736.	482.	14876.	420.	1860.	62.
SALMONID LAKE	12663.	374.	12329.	363.	334.	11.
NONSALMONID STREAM	16946.	541.	14403.	465.	2543.	76.
NONSALMONID LAKE	33528.	997.	27942.	823.	5586.	174.
UNDESIG STRM MGMT	2211.	64.	2111.	60.	100.	4.
UNDESIG LAKE MGMT	2787.	78.	2712.	75.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	84871.	2536.	74373.	2206.	10498.	330.
UPPER MISSOURI DR						
SALMONID STREAM	120081.	3472.	95620.	2759.	24461.	713.
SALMONID LAKE	196049.	5652.	176398.	5077.	19651.	575.
NONSALMONID STREAM	3807.	108.	3452.	99.	355.	9.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	2051.	62.	1414.	40.	637.	22.
UNDESIG LAKE MGMT	5309.	154.	5134.	147.	175.	7.
DRAINAGE PRESSURE ESTIMATES:	327297.	9448.	282018.	8122.	45279.	1326.
MUSSELSHELL DR						
SALMONID STREAM	10389.	300.	9414.	266.	975.	34.
SALMONID LAKE	18928.	535.	18525.	521.	403.	14.
NONSALMONID STREAM	40.	1.	40.	1.	0.	0.
NONSALMONID LAKE	1859.	55.	1809.	53.	50.	2.
UNDESIG STRM MGMT	711.	24.	511.	16.	200.	8.
UNDESIG LAKE MGMT	1023.	30.	998.	29.	25.	1.
DRAINAGE PRESSURE ESTIMATES:	32950.	945.	31297.	886.	1653.	59.
ST MARY DR						
SALMONID STREAM	124.	3.	124.	3.	0.	0.
SALMONID LAKE	1890.	55.	1742.	52.	148.	3.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	25.	1.	25.	1.	0.	0.
UNDESIG STRM MGMT	90.	3.	40.	1.	50.	2.
UNDESIG LAKE MGMT	453.	12.	403.	10.	50.	2.
DRAINAGE PRESSURE ESTIMATES:	2582.	74.	2334.	67.	248.	7.
SUN DR						
SALMONID STREAM	9390.	266.	7243.	202.	2147.	64.
SALMONID LAKE	13384.	403.	12891.	386.	493.	17.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	192.	7.	192.	7.	0.	0.
UNDESIG STRM MGMT	344.	10.	344.	10.	0.	0.
UNDESIG LAKE MGMT	899.	27.	711.	22.	188.	5.
DRAINAGE PRESSURE ESTIMATES:	24209.	713.	21381.	627.	2828.	86.

Table 8. Angling pressure in angler days by drainage by water type for the 1993 "summer" angling season May '93 through September '93 (continued)

DRAIN WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER YELLOWSTONE DR						
SALMONID STREAM	2699.	81.	2300.	70.	399.	11.
SALMONID LAKE	4202.	121.	4202.	121.	0.	0.
NONSALMONID STREAM	30139.	909.	27815.	824.	2324.	85.
NONSALMONID LAKE	28318.	892.	18450.	599.	9868.	293.
UNDESIG STRM MGMT	1144.	31.	1019.	26.	125.	5.
UNDESIG LAKE MGMT	1828.	53.	1753.	50.	75.	3.
DRAINAGE PRESSURE ESTIMATES:	68330.	2087.	55539.	1690.	12791.	397.
UPPER YELLOWSTONE DR						
SALMONID STREAM	219260.	6420.	140754.	3868.	78506.	2552.
SALMONID LAKE	64660.	1830.	54070.	1494.	10590.	336.
NONSALMONID STREAM	9634.	283.	9139.	267.	495.	16.
NONSALMONID LAKE	659.	21.	659.	21.	0.	0.
UNDESIG STRM MGMT	4582.	141.	2840.	76.	1742.	65.
UNDESIG LAKE MGMT	4909.	156.	3260.	94.	1649.	62.
DRAINAGE PRESSURE ESTIMATES:	303704.	8851.	210722.	5820.	92982.	3031.
TOTAL						
SALMONID STREAM	1027413.	29463.	672589.	18818.	354824.	10645.
SALMONID LAKE	708545.	19956.	558060.	15864.	150485.	4092.
NONSALMONID STREAM	64899.	1982.	58854.	1785.	6045.	197.
NONSALMONID LAKE	91915.	2743.	73806.	2217.	18109.	526.
UNDESIG STRM MGMT	35497.	1088.	19447.	542.	16050.	546.
UNDESIG LAKE MGMT	34285.	1012.	29606.	846.	4679.	166.
STATEWIDE PRESSURE ESTIMATES:	1962554.	56244.	1412362.	40072.	550192.	16172.

1993 WINTER

The "winter" season for angling is from March through April and October through February of the following year. In 1993, 615,893 angler days (23.9%) of the annual fishing pressure occurred during this period (Table 9). Residents accounted for 89.6% of the total angling pressure for the "winter" season. Angling pressure was directed towards salmonid streams with 47.1% of the "winter" use. Salmonid lakes accounted for 41.9% of the use during this same time period.

The pressure from region to region ranged from a high of 181,070 angler days for Region 3 to a low of 14,801 angler days for Region 7. Angling pressure by residents for this period for each FWP region ranged from a low of 88.8% for region 7 to a high of 97.1% for region 4.

Winter angling pressure (Table 10) by drainage ranged from 121,762 angler days for the Upper Missouri River drainage to 26 angler days for the Little Missouri River drainage in Eastern Montana. Residents accounted for as low as 57.1% of the pressure in the Madison River drainage to a high of 100% of the pressure in the Little Missouri River, Musselshell, St. Mary River, upper Flathead River, and Sun River drainages.

Table 9. Angling pressure in angler days by region by water type for the "winter" season of March '93 through April '93 and October '93 through February '94.

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
1							
	SALMONID STREAM	29520.	552.	26329.	498.	3191.	54.
	SALMONID LAKE	46792.	789.	44251.	763.	2541.	26.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	5410.	107.	5270.	106.	140.	1.
	UNDESIG STRM MGMT	721.	12.	721.	12.	0.	0.
	UNDESIG LAKE MGMT	1439.	31.	1439.	31.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	83882.	1491.	78010.	1410.	5872.	81.
2							
	SALMONID STREAM	62438.	1249.	56562.	1103.	5876.	146.
	SALMONID LAKE	20880.	348.	20859.	347.	21.	1.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	26.	1.	26.	1.	0.	0.
	UNDESIG STRM MGMT	182.	5.	182.	5.	0.	0.
	UNDESIG LAKE MGMT	1085.	22.	1085.	22.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	84611.	1625.	78714.	1478.	5897.	147.
3							
	SALMONID STREAM	101728.	1898.	78763.	1556.	22965.	342.
	SALMONID LAKE	77858.	1303.	65387.	1144.	12471.	159.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	484.	8.	231.	4.	253.	4.
	UNDESIG LAKE MGMT	1000.	23.	1000.	23.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	181070.	3232.	145381.	2727.	35689.	505.
4							
	SALMONID STREAM	40887.	834.	38976.	805.	1911.	29.
	SALMONID LAKE	78624.	1380.	76655.	1357.	1969.	23.
	NONSALMONID STREAM	3197.	65.	3197.	65.	0.	0.
	NONSALMONID LAKE	5777.	77.	5777.	77.	0.	0.
	UNDESIG STRM MGMT	1316.	23.	1316.	23.	0.	0.
	UNDESIG LAKE MGMT	3631.	82.	3631.	82.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	133432.	2461.	129552.	2409.	3880.	52.
5							
	SALMONID STREAM	53546.	1124.	47509.	923.	6037.	201.
	SALMONID LAKE	24112.	419.	22693.	388.	1419.	31.
	NONSALMONID STREAM	5347.	117.	5347.	117.	0.	0.
	NONSALMONID LAKE	141.	1.	141.	1.	0.	0.
	UNDESIG STRM MGMT	1757.	19.	1757.	19.	0.	0.
	UNDESIG LAKE MGMT	468.	12.	425.	10.	43.	2.
	REGIONAL PRESSURE ESTIMATES:	85371.	1692.	77872.	1458.	7499.	234.

Table 9. Angling pressure in angler days by region by water type for the "winter" season of March '93 through April '93 and October '92 through February '94 (continued)

REG	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NON-RESIDENTS PRESSURE	NON-RESIDENTS TRIPS
6							
	SALMONID STREAM	1559.	39.	1559.	39.	0.	0.
	SALMONID LAKE	7543.	133.	6562.	126.	981.	7.
	NONSALMONID STREAM	4268.	118.	4268.	118.	0.	0.
	NONSALMONID LAKE	12915.	250.	12032.	236.	883.	14.
	UNDESIG STRM MGMT	138.	4.	138.	4.	0.	0.
	UNDESIG LAKE MGMT	940.	13.	940.	13.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	27363.	557.	25499.	536.	1864.	21.
7							
	SALMONID STREAM	209.	4.	209.	4.	0.	0.
	SALMONID LAKE	2519.	48.	2519.	48.	0.	0.
	NONSALMONID STREAM	6399.	138.	6356.	136.	43.	2.
	NONSALMONID LAKE	4369.	102.	2749.	67.	1620.	35.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	1305.	23.	1305.	23.	0.	0.
	REGIONAL PRESSURE ESTIMATES:	14801.	315.	13138.	278.	1663.	37.
TOTAL							
	SALMONID STREAM	289887.	5700.	249907.	4928.	39980.	772.
	SALMONID LAKE	258328.	4420.	238926.	4173.	19402.	247.
	NONSALMONID STREAM	19211.	438.	19168.	436.	43.	2.
	NONSALMONID LAKE	28638.	538.	25995.	488.	2643.	50.
	UNDESIG STRM MGMT	9961.	139.	8229.	117.	1732.	22.
	UNDESIG LAKE MGMT	9868.	206.	9825.	204.	43.	2.
	STATEWIDE PRESSURE ESTIMATES:	615893.	11441.	552050.	10346.	63843.	1095.

Table 10. Angling pressure in angler days by drainage by water type for the 1993 "winter" angling season March '93 through April '93 and October '93 through February '94

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BEAVERHEAD DR							
	SALMONID STREAM	6753.	144.	5109.	121.	1644.	23.
	SALMONID LAKE	24096.	329.	18230.	259.	5866.	70.
	NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
	NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
	UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
	UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
	DRAINAGE PRESSURE ESTIMATES:	30849.	473.	23339.	380.	7510.	93.

Table 10. Angling pressure in angler days by drainage by water type for the 1993 "winter" angling season March '93 through April '93 and October '93 through February '94 (continued)

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
BIG HOLE DR						
SALMONID STREAM	9360.	181.	6782.	141.	2578.	40.
SALMONID LAKE	928.	34.	928.	34.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	26.	1.	26.	1.	0.	0.
UNDESIG LAKE MGMT	268.	7.	268.	7.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	10582.	223.	8004.	183.	2578.	40.
BITTERROOT DR						
SALMONID STREAM	26601.	466.	25113.	431.	1488.	35.
SALMONID LAKE	902.	35.	902.	35.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	52.	2.	52.	2.	0.	0.
UNDESIG LAKE MGMT	190.	6.	190.	6.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	27745.	509.	26257.	474.	1488.	35.
BLACKFOOT DR						
SALMONID STREAM	6850.	140.	6630.	132.	220.	8.
SALMONID LAKE	4794.	105.	4773.	104.	21.	1.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	130.	3.	130.	3.	0.	0.
UNDESIG LAKE MGMT	156.	4.	156.	4.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	11930.	252.	11689.	243.	241.	9.
LOWER CLARK FORK DR						
SALMONID STREAM	20372.	438.	17382.	359.	2990.	79.
SALMONID LAKE	4467.	78.	4144.	72.	323.	6.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	216.	5.	216.	5.	0.	0.
UNDESIG LAKE MGMT	130.	3.	130.	3.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	25185.	524.	21872.	439.	3313.	85.
UPPER CLARK FORK DR						
SALMONID STREAM	13226.	319.	11871.	289.	1355.	30.
SALMONID LAKE	14510.	195.	14510.	195.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	26.	1.	26.	1.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	687.	10.	687.	10.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	28449.	525.	27094.	495.	1355.	30.

Table 10. Angling pressure in angler days by drainage by water type for the 1993 "winter" angling season March '93 through April '93 and October '93 through February '94 (continued)

DRAIN · WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LOWER FLATHEAD DR						
SALMONID STREAM	14861.	270.	12880.	241.	1981.	29.
SALMONID LAKE	28330.	530.	27419.	521.	911.	9.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	4434.	90.	4434.	90.	0.	0.
UNDESIG STRM MGMT	424.	6.	424.	6.	0.	0.
UNDESIG LAKE MGMT	1241.	26.	1241.	26.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	49290.	922.	46398.	884.	2892.	38.
UPPER FLATHEAD DR						
SALMONID STREAM	1171.	24.	1171.	24.	0.	0.
SALMONID LAKE	1492.	25.	1492.	25.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	155.	4.	155.	4.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	2818.	53.	2818.	53.	0.	0.
GALLATIN DR						
SALMONID STREAM	24255.	457.	21541.	399.	2714.	58.
SALMONID LAKE	2714.	56.	2644.	55.	70.	1.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	113.	3.	0.	0.	113.	3.
UNDESIG LAKE MGMT	129.	5.	129.	5.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	27211.	521.	24314.	459.	2897.	62.
JEFFERSON DR						
SALMONID STREAM	6192.	104.	5907.	102.	285.	2.
SALMONID LAKE	4439.	73.	4369.	72.	70.	1.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	81.	1.	81.	1.	0.	0.
UNDESIG LAKE MGMT	26.	1.	26.	1.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	10738.	179.	10383.	176.	355.	3.
KOOTENAI DR						
SALMONID STREAM	8877.	144.	7844.	125.	1033.	19.
SALMONID LAKE	13177.	169.	11870.	158.	1307.	11.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	976.	17.	836.	16.	140.	1.
UNDESIG STRM MGMT	81.	1.	81.	1.	0.	0.
UNDESIG LAKE MGMT	43.	1.	43.	1.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	23154.	332.	20674.	301.	2480.	31.

Table 10. Angling pressure in angler days by drainage by water type for the 1993 "winter" angling season March '93 through April '93 and October '93 through February '94

DRAIN WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
LITTLE MISSOURI DR						
SALMONID STREAM	0.	0.	0.	0.	0.	0.
SALMONID LAKE	26.	1.	26.	1.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
DRAINAGE PRESSURE ESTIMATES:						
	26.	1.	26.	1.	0.	0.
MADISON DR						
SALMONID STREAM	26657.	540.	16010.	379.	10647.	161.
SALMONID LAKE	11211.	181.	5459.	101.	5752.	80.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	396.	5.	396.	5.	0.	0.
DRAINAGE PRESSURE ESTIMATES:						
	38264.	726.	21865.	485.	16399.	241.
MARIAS DR						
SALMONID STREAM	1511.	37.	1511.	37.	0.	0.
SALMONID LAKE	10569.	206.	10281.	204.	288.	2.
NONSALMONID STREAM	344.	5.	344.	5.	0.	0.
NONSALMONID LAKE	3878.	43.	3878.	43.	0.	0.
UNDESIG STRM MGMT	806.	10.	806.	10.	0.	0.
UNDESIG LAKE MGMT	892.	18.	892.	18.	0.	0.
DRAINAGE PRESSURE ESTIMATES:						
	18000.	319.	17712.	317.	288.	2.
MILK DR						
SALMONID STREAM	802.	23.	802.	23.	0.	0.
SALMONID LAKE	7061.	121.	6080.	114.	981.	7.
NONSALMONID STREAM	2047.	63.	2047.	63.	0.	0.
NONSALMONID LAKE	2898.	52.	2898.	52.	0.	0.
UNDESIG STRM MGMT	52.	2.	52.	2.	0.	0.
UNDESIG LAKE MGMT	700.	10.	700.	10.	0.	0.
DRAINAGE PRESSURE ESTIMATES:						
	13560.	271.	12579.	264.	981.	7.
LOWER MISSOURI DR						
SALMONID STREAM	3914.	87.	3893.	86.	21.	1.
SALMONID LAKE	7248.	138.	7205.	136.	43.	2.
NONSALMONID STREAM	3669.	80.	3669.	80.	0.	0.
NONSALMONID LAKE	10993.	214.	10110.	200.	883.	14.
UNDESIG STRM MGMT	86.	2.	86.	2.	0.	0.
UNDESIG LAKE MGMT	537.	9.	537.	9.	0.	0.
DRAINAGE PRESSURE ESTIMATES:						
	26447.	530.	25500.	513.	947.	17.

Table 10. Angling pressure in angler days by drainage by water type for the 1993 "winter" angling season March '93 through April '93 and October '93 through February '94

DRAIN / WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER MISSOURI DR						
SALMONID STREAM	37976.	751.	35946.	721.	2030.	30.
SALMONID LAKE	79923.	1420.	77572.	1394.	2351.	26.
NONSALMONID STREAM	1750.	43.	1750.	43.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	380.	10.	380.	10.	0.	0.
UNDESIG LAKE MGMT	1733.	36.	1733.	36.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	121762.	2260.	117381.	2204.	4381.	56.
MUSSELSHELL DR						
SALMONID STREAM	2270.	50.	2270.	50.	0.	0.
SALMONID LAKE	9456.	161.	9456.	161.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	543.	14.	543.	14.	0.	0.
UNDESIG STRM MGMT	129.	3.	129.	3.	0.	0.
UNDESIG LAKE MGMT	319.	9.	319.	9.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	12717.	237.	12717.	237.	0.	0.
ST MARY DR						
SALMONID STREAM	0.	0.	0.	0.	0.	0.
SALMONID LAKE	1297.	23.	1297.	23.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	0.	0.	0.	0.	0.	0.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	0.	0.	0.	0.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	1297.	23.	1297.	23.	0.	0.
SUN DR						
SALMONID STREAM	1155.	22.	1155.	22.	0.	0.
SALMONID LAKE	6041.	84.	6041.	84.	0.	0.
NONSALMONID STREAM	0.	0.	0.	0.	0.	0.
NONSALMONID LAKE	380.	4.	380.	4.	0.	0.
UNDESIG STRM MGMT	130.	3.	130.	3.	0.	0.
UNDESIG LAKE MGMT	416.	14.	416.	14.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	8122.	127.	8122.	127.	0.	0.
LOWER YELLOWSTONE DR						
SALMONID STREAM	209.	4.	209.	4.	0.	0.
SALMONID LAKE	2493.	47.	2493.	47.	0.	0.
NONSALMONID STREAM	6054.	130.	6011.	128.	43.	2.
NONSALMONID LAKE	4369.	102.	2749.	67.	1620.	35.
UNDESIG STRM MGMT	0.	0.	0.	0.	0.	0.
UNDESIG LAKE MGMT	1305.	23.	1305.	23.	0.	0.
DRAINAGE PRESSURE ESTIMATES:	14430.	306.	12767.	269.	1663.	37.

Table 10. Angling pressure in angler days by drainage by water type for the 1993 "winter" angling season March '93 through April '93 and October '93 through February '94 (continued)

DRAIN	WATER TYPE	TOTALS PRESSURE	TOTALS TRIPS	RESIDENTS PRESSURE	RESIDENTS TRIPS	NONRESIDENTS PRESSURE	NONRESIDENTS TRIPS
UPPER YELLOWSTONE DR							
	SALMONID STREAM	76875.	1499.	65881.	1242.	10994.	257.
	SALMONID LAKE	23154.	409.	21735.	378.	1419.	31.
	NONSALMONID STREAM	5347.	117.	5347.	117.	0.	0.
	NONSALMONID LAKE	141.	1.	141.	1.	0.	0.
	UNDESIG STRM MGMT	1892.	19.	1752.	18.	140.	1.
	UNDESIG LAKE MGMT	545.	15.	502.	13.	43.	2.
	DRAINAGE PRESSURE ESTIMATES:	107954.	2060.	95358.	1769.	12596.	291.
TOTAL							
	SALMONID STREAM	289887.	5700.	249907.	4928.	39980.	772.
	SALMONID LAKE	258328.	4420.	238926.	4173.	19402.	247.
	NONSALMONID STREAM	19211.	438.	19168.	436.	43.	2.
	NONSALMONID LAKE	28638.	538.	25995.	488.	2643.	50.
	UNDESIG STRM MGMT	9961.	139.	8229.	117.	1732.	22.
	UNDESIG LAKE MGMT	9868.	206.	9825.	204.	43.	2.
	STATEWIDE PRESSURE ESTIMATES:	615893.	11441.	552050.	10346.	63843.	1095.

DISCUSSION

SCOPE OF ANGLING PRESSURE

The statewide angling pressure survey was conducted from March, 1993 through February, 1994. Estimates of pressure by residents and nonresidents were for licensed anglers only. This would encompass anglers 12 years of age and older. Spence (1971) found that the unlicensed angler (ages 2- 14) comprised 9% of the pressure on Rock Creek near Missoula. Peterson (1970) found that the unlicensed angler accounted for 21% and 19% of the total number of anglers on Big Spring Creek near Lewistown during 1968 and 1969 respectively. On the Bighorn River near Hardin, Stevenson (1975) found that the unlicensed angler accounted for 14.2% and 15.8% of the total number of anglers during 1972 and 1973 respectively. Fredenberg (1984) found that 10% of the anglers on Bighorn Lake and 13% of the anglers on the Yellowtail Afterbay were unlicensed. The 1975 National Fishing and Hunting Survey showed that 23.8% of the anglers nationwide were between the ages of 9 and 17. It appears that the unlicensed angler makes up between 9% to 21% of the fishing pressure depending on the type of water being fished.

Some angling pressure was obtained on Indian reservations and National Parks within Montana. This pressure was incidental to other fishing trips and only included those anglers that had purchased a Montana fishing license. Since national parks and reservations require different licensing, a complete pressure estimate of waters within those regions was not obtained.

ACCURACY

SAMPLING

Samples were drawn and questionnaires sent to the selected anglers as soon as possible. This was usually 15-20 days after the wave being sampled had ended (see discussion under Methods for details). Since license dealers are not required to remit copies of licenses sold until the 10th of the following month, the samples may not contain all the eligible anglers for a given period. The months of April through September are most affected by this procedure, since license sales naturally curtail after September. This means of obtaining a sample may skew the pressure if license dealers from a given area don't remit their licenses in a timely manner. At the present time, there is no way to estimate the extent, if any, of this bias.

PRESSURE

No significant difference was found between the survey results and on-site creel census for rivers for the statewide angling mail surveys conducted from 1982 through 1985 (McFarland, 1989). When both surveys were conducted simultaneously on lakes and reservoirs, the results again agreed (McFarland, 1989). The same methodology was used in this survey as was used in those conducted from 1982 through 1985 and in 1989 (McFarland, 1991). At the time this report was written, no published results were availble for creel census conducted during the same time frame so no direct comparisons could be made.

RETURN RATES

Return rates (# of respondents / [# of surveys sent - nondeliverables] * 100) were calculated for every wave by residency. Return rates were calculated with and without the follow-up phone calls of resident nonrespondents (Table 11). The average total return rates for residents and nonresidents was 65.8% and 68.7% respectively. Nonresident return rates for season license holders was 69.4% and was less for 2-day license buyers at 60.4%. Without the telephone calls of nonrespondents the average return rate dropped to 62.3% for residents and 57.7% for 2-day nonresident license holders. No phone calls were made to nonresident season license holders so the return rate remained the same.

Table 11. Return rates by residency with and without phone follow-ups for the 1993 statewide angling survey.

	Total Return Rates		Return Rates w/o Phone	
WAVE	Resident	Nonresident	Resident	Nonresident*
1	86.3	68.0	64.4	68.0
2	63.8	66.5	62.2	66.5
3	61.6	62.7	60.2	62.7
4	61.5	69.3	60.1	69.3
5	58.7	70.0	57.2	70.0
6	61.7	69.0	60.1	69.0
7	60.2	65.5	58.6	65.5
8	61.8	72.6	60.2	72.6
9	67.5	71.2	64.6	71.2
10	69.9	72.5	67.5	72.5
11	68.9	74.7	67.2	74.7
12	67.9	70.4	65.3	70.4
99		60.4		57.7

* Nonresident season license nonrespondents were not telephoned.

NONRESPONSE BIAS

Telephone calls were made to a random sample of nonrespondents to ascertain if the percent fishing was different from those who responded to the mail survey. The average phone respondent was no more likely to have fished than than mail respondents (paired t-value= 0.75, 11 d.f. p-value = .47). The range, from wave to wave, was 1.5 times for January to .15 times as likely to fish for February. February was the only month that was high (6.5 times more likely to fish for phone respondents). For the months of March, April, May, December and January, the mail respondents were more likely to go fishing than the phone respondents. During the other months the reverse was true.

NUMBER OF LICENSED ANGLERS VS PRESSURE

The number of resident anglers has increased for the period 1982 to 1985 and then decreased until 1989 and then continued to steadily

increase (Table 12). The number of nonresident anglers during this same period decreased initially and then increased so that overall, the total number of anglers remained fairly static until 1993. In 1993 there was a 6.1% increase from the previous year in the total number of licensed anglers in Montana. The number of nonresident licensed anglers increased by 12.7% while the resident licensed angler increase was lower at 2.2%.

Table 12. Number of licensed anglers from 1982 through 1993 by residency.

Year	Resident Anglers	Nonresident Anglers
1982	216,689	119,293
1983	217,483	116,875
1984	232,485	102,843
1985	236,455	106,304
1986	235,403	100,456
1987	233,111	103,936
1988	219,299	108,471
1989	216,412	114,254
1990	217,370	119,611
1991	221,723	138,243
1992	222,186	134,212
1993	226,992	151,192

Comparing statewide angling use from the mail survey versus number of anglers shows some correlation for residents in the recent years (1989-1993), while nonresidents seem to have some association between number of anglers and the amount of use exerted (Charts 5 & 6) with the exception of 1991. In 1991 the number of nonresident anglers increased while the pressure exerted by nonresidents decreased.

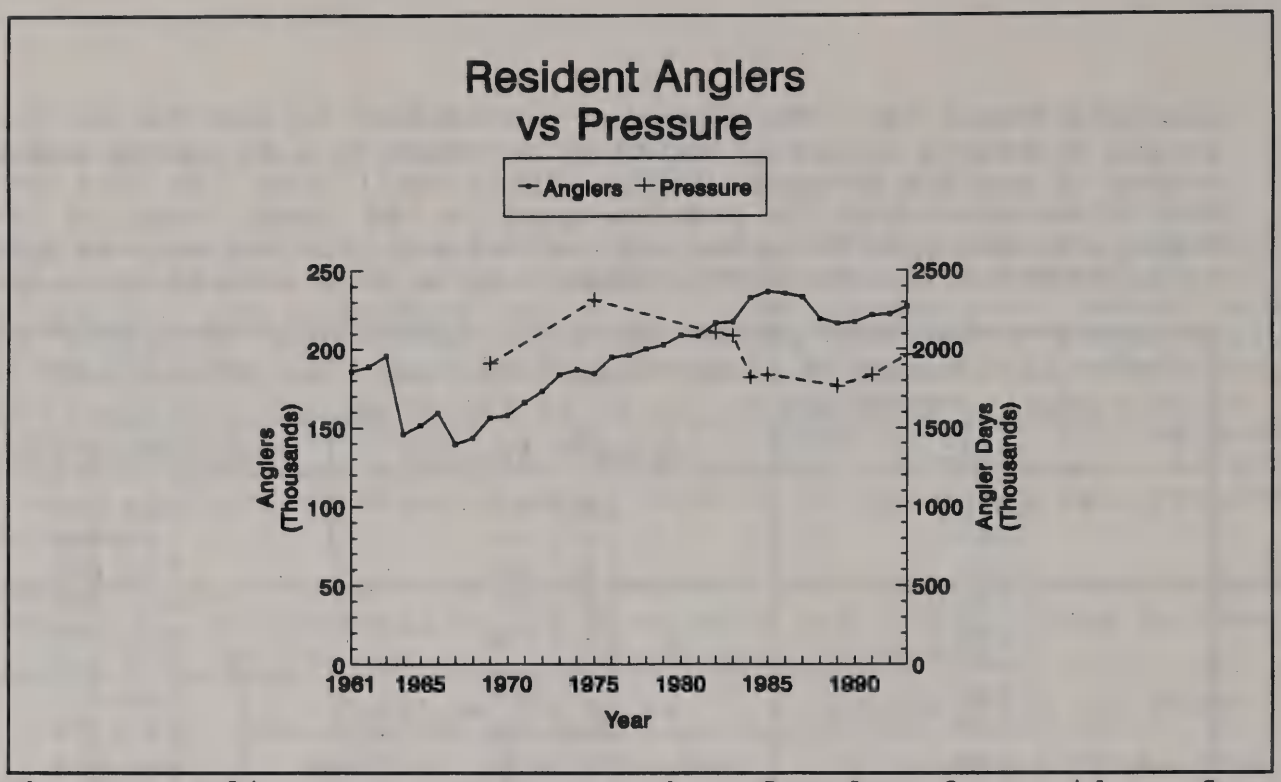

Chart5. Angling pressure versus number of anglers for residents from 1961 to 1993.

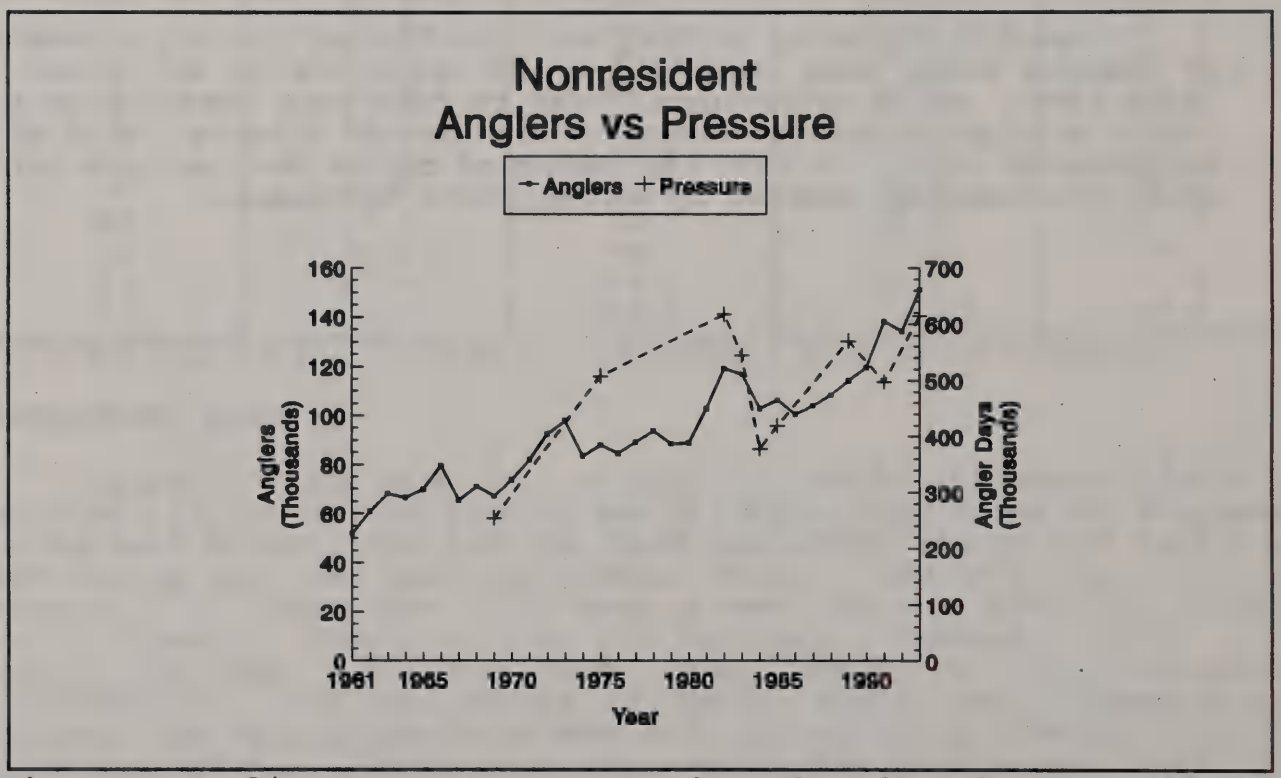

Chart 6. Angling pressure versus number of anglers for nonresidents from 1961 to 1993.

CONCLUSIONS AND RECOMMENDATIONS

The statewide angling pressure mail survey continues to provide invaluable data on individual bodies of water as well as statewide estimates.

Nonresident big game license holders need to be sampled to see if the rate of fishing has changed within this segement of the angling public.

It is recommended that the survey continue to be conducted every other year. This will provide long term trend data.

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APPENDIX A

Examples of questionnaires

Montana Department of
Fish, Wildlife & Parks

please return bottom portion

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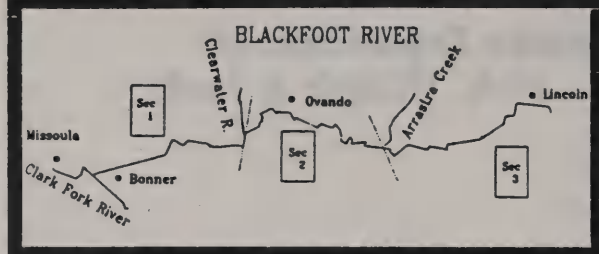
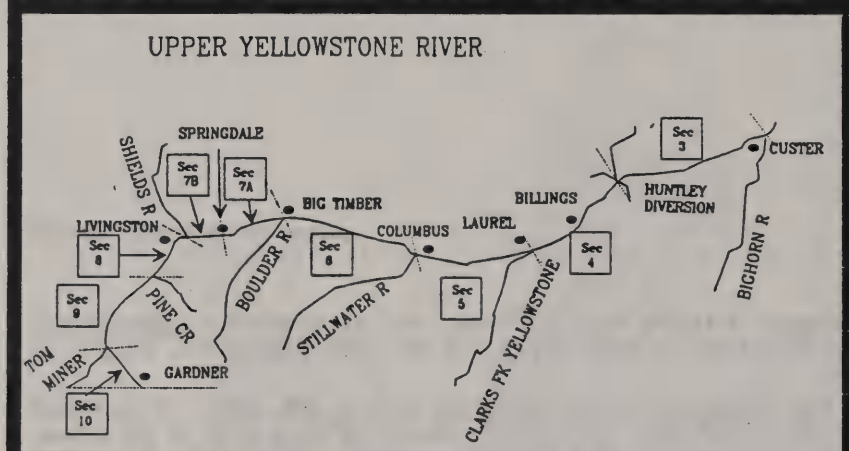
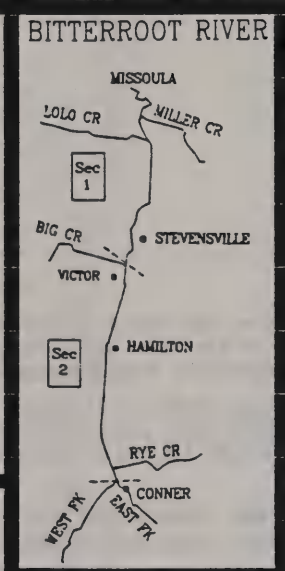
WE NEED INFORMATIFON ON ALL WATERS FISHED IN MONTANA NOT JUST THE WATERS INCLUDED ON THIS PAGE.

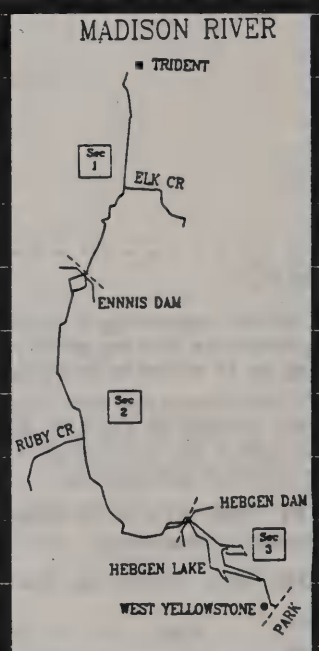
SPECIFIC SECTIONS OF MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY

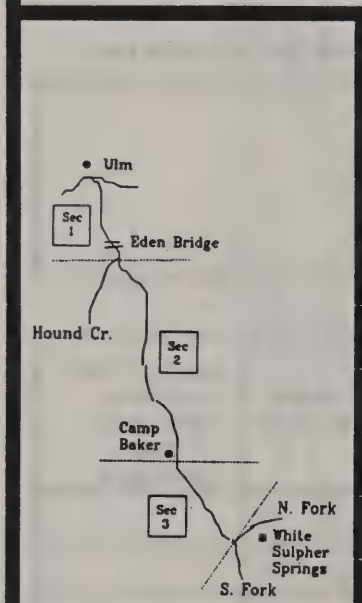


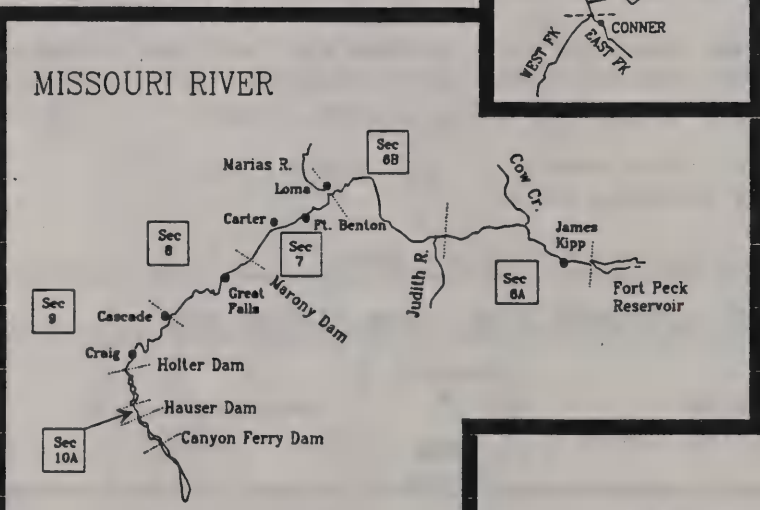
We need information on ALL waters fished in Montana not just the waters included on this page. If you fished one of the rivers indicated on a map, please enter the specific section number in the appropriate space on the questionnaire form. For waters other than those indicated on a map, this includes the Flathead, Milk River, eastern sections of the Missouri and Yellowstone, etc., please be very specific as to the name of the lake, stream, or reservoir and the nearest town, point of access, or landmark to facilitate identification.

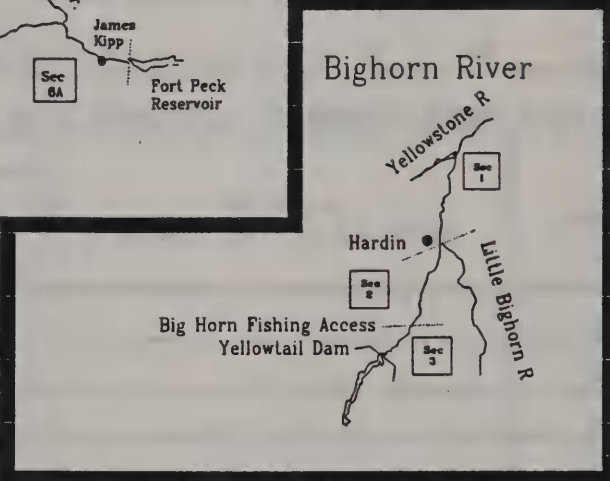


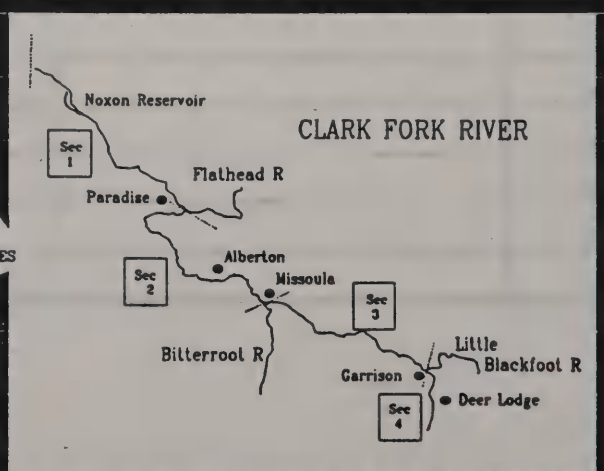


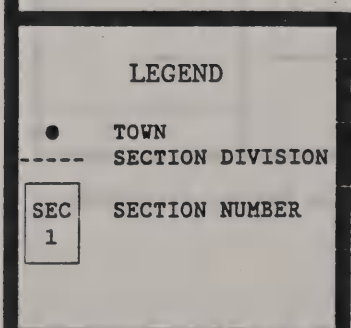












Montana Department of
Fish, Wildlife & Parks

please return bottom portion

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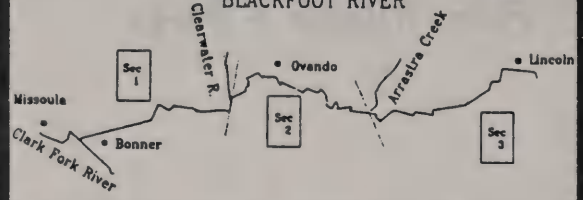
WE NEED INFORMATIFON ON ALL WATERS FISHED IN MONTANA NOT JUST THE WATERS INCLUDED ON THIS PAGE.

SPECIFIC SECTIONS OF MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY

BLACKFOOT RIVER



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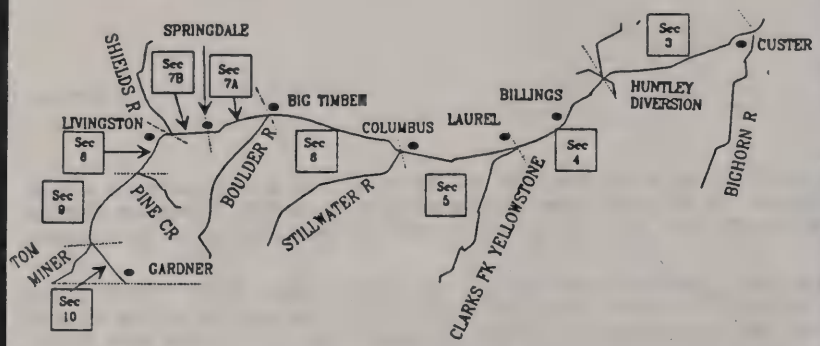
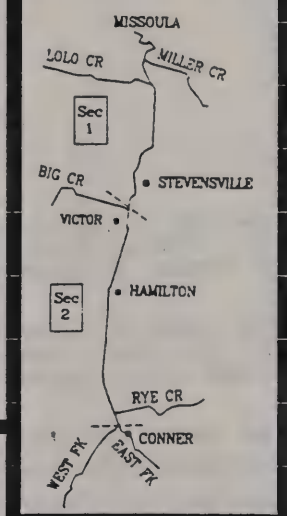
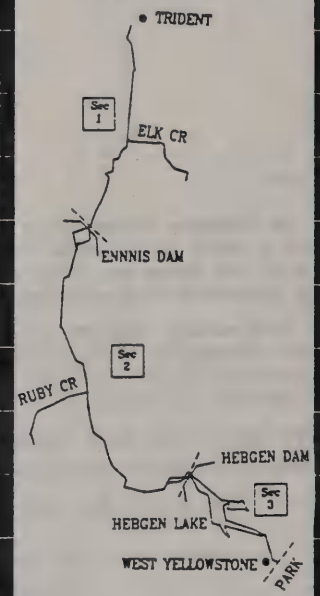
UPPER YELLOWSTONE RIVER



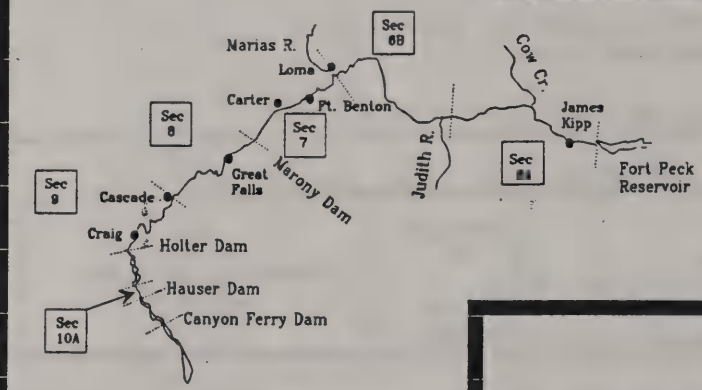
BITTERROOT RIVER

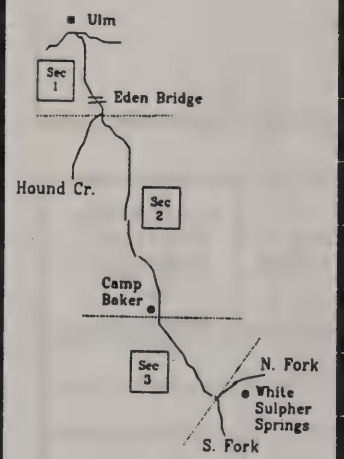


MADISON RIVER



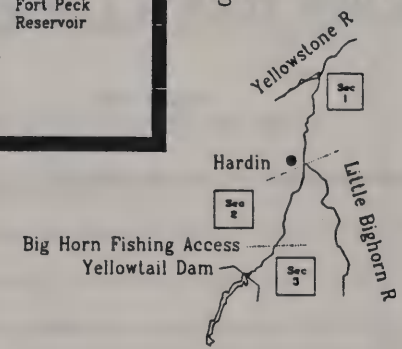
MISSOURI RIVER



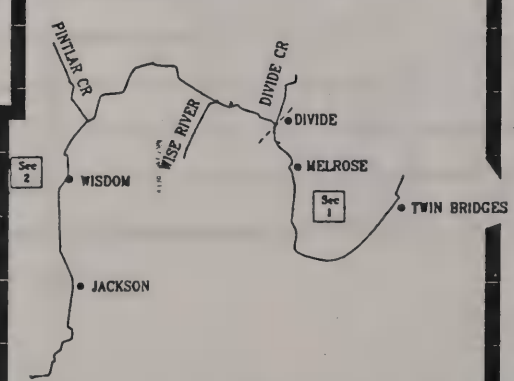


SMITH RIVER

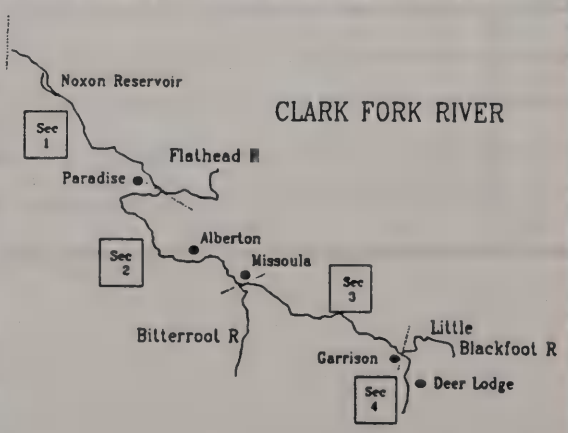
Bighorn River



BIG HOLE RIVER



CLARK FORK RIVER



LEGEND

- TOWN
- SECTION DIVISION
- SEC 1 — SECTION NUMBER

Montana Department of
Fish, Wildlife & Parks

Dear Angler,

We are conducting our annual survey sent to a random sample of fishing license holders. This survey provides important data to help determine fishing pressure on Montana lakes and streams. By providing us with this vital information, you will be assisting us in properly managing Montana's fish population.

This survey requests only your fishing activities. Include ALL waters fished in Montana for the time indicated. If you fished one of the streams on the back of this form, please include the section number to aid us in identifying the portion of the stream. All information you provide will be held in strict confidence. We appreciate your continued cooperation in returning this survey at your earliest convenience.

EVEN IF YOU DID NOT FISH OR CATCH ANY FISH, PLEASE FILL OUT AND RETURN THIS QUESTIONNAIRE.

Did you purchase a Montana fishing license between March 1993 and February 1994?

☐ No - If no, stop here and return form.

☐ Yes - If yes, total number of days fished _____?
Type of license purchased: [ ] Non-Resident Season
[ ] 2-day -- How many did you purchase for only your use___?

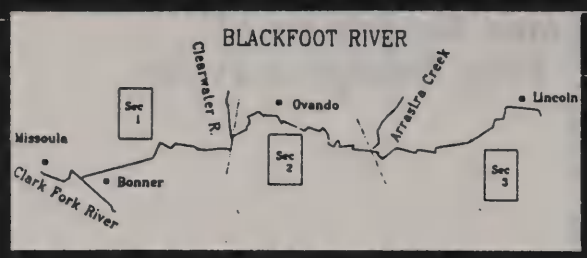
Enter **EACH WATER FISHED IN MONTANA** during this time period on a separate line below.

Date	Name of Lake or stream fished in Montana	Section # (See back)	Name of Nearest town or county	Days fished	MOSTLY BY: F=Float M=Motor Boat S=Shore

Thank you for your assistance.

WE NEED INFORMATIFON ON ALL WATERS FISHED IN MONTANA NOT JUST THE WATERS INCLUDED ON THIS PAGE.

SPECIFIC SECTIONS OF MONTANA WATERS THAT ARE DIFFICULT TO IDENTIFY



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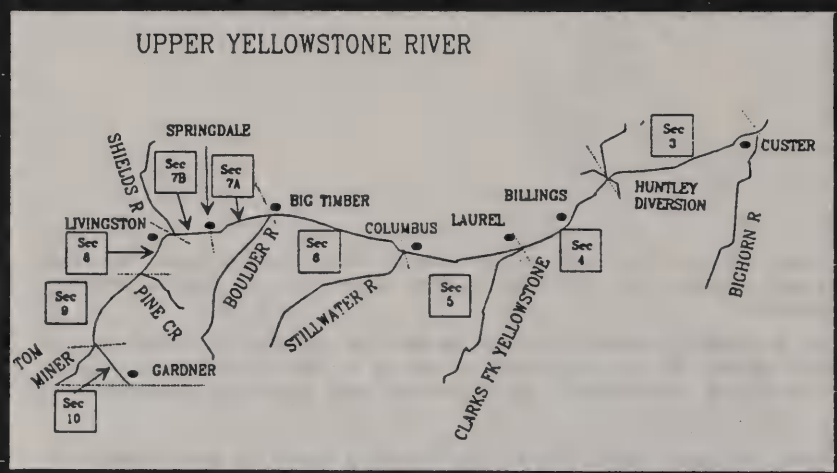

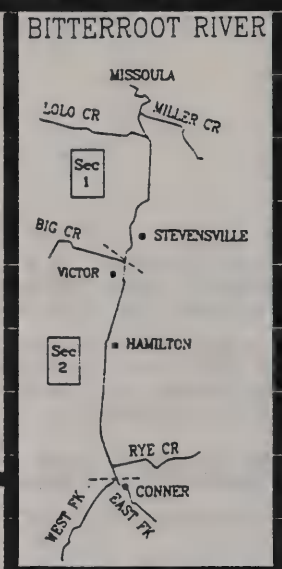

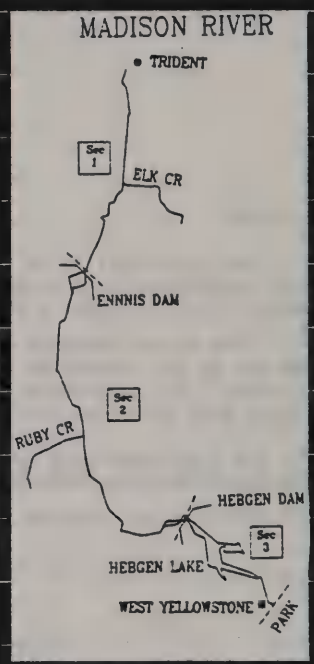

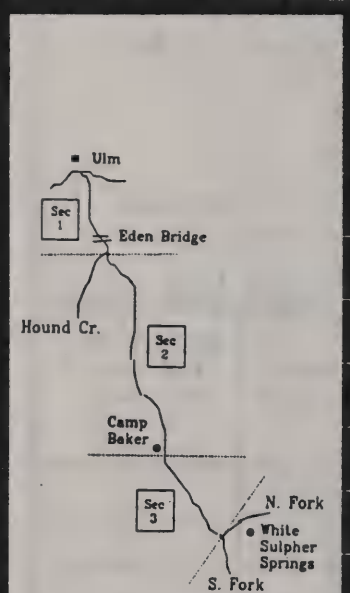

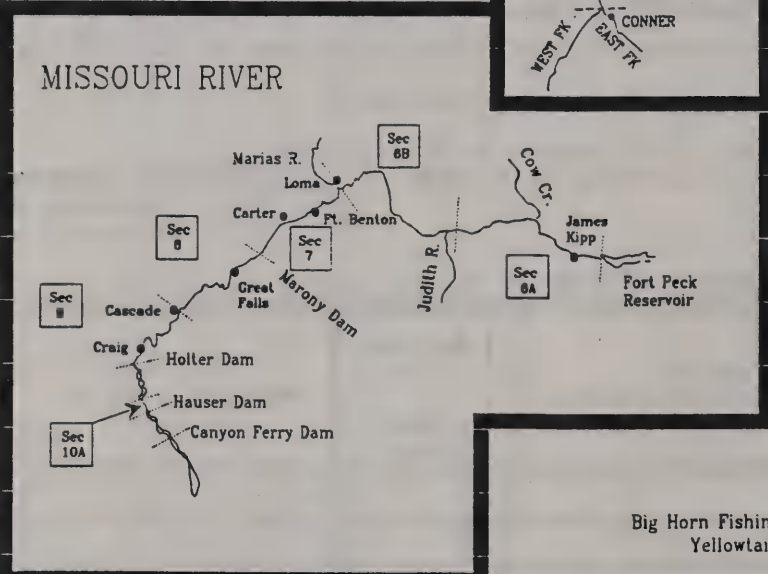

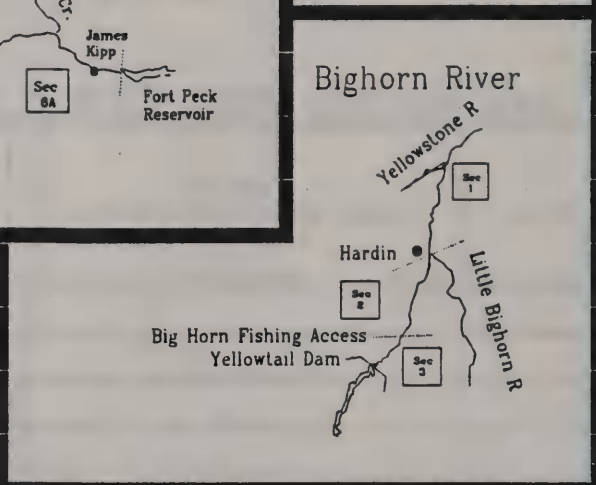

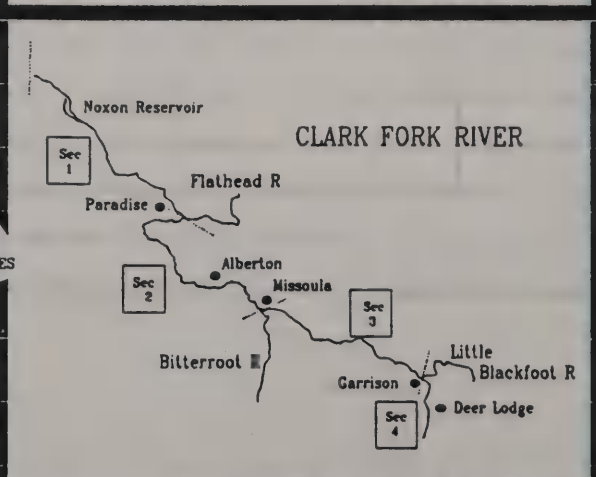

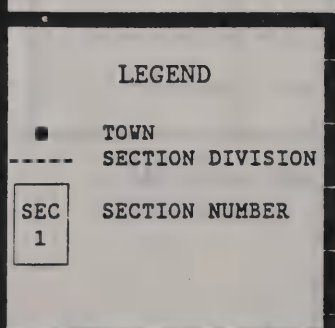

Montana Department of
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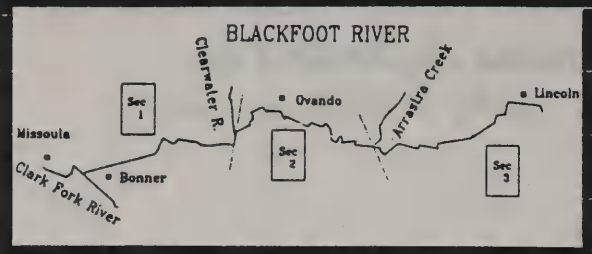

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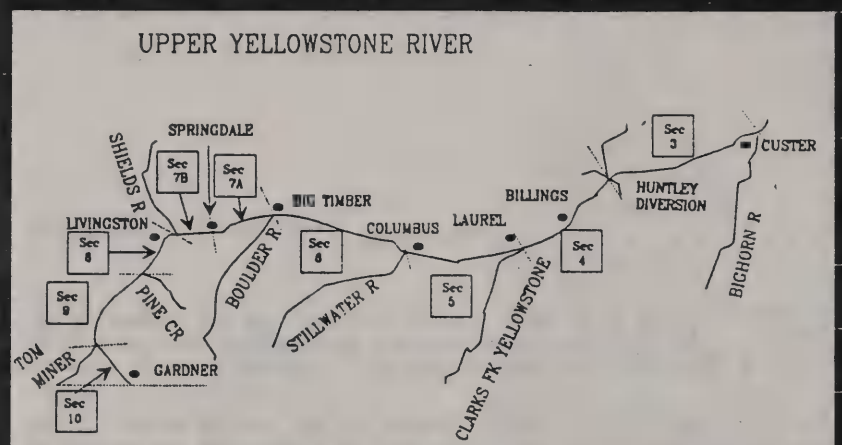

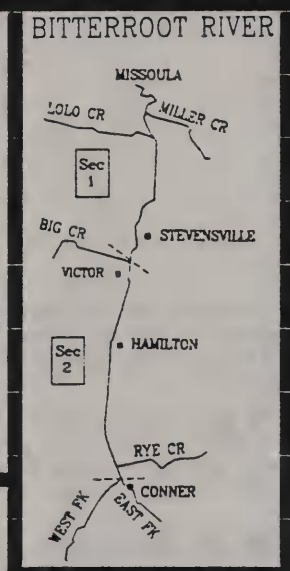

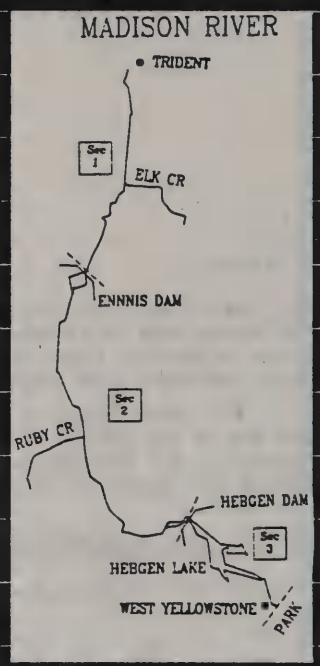

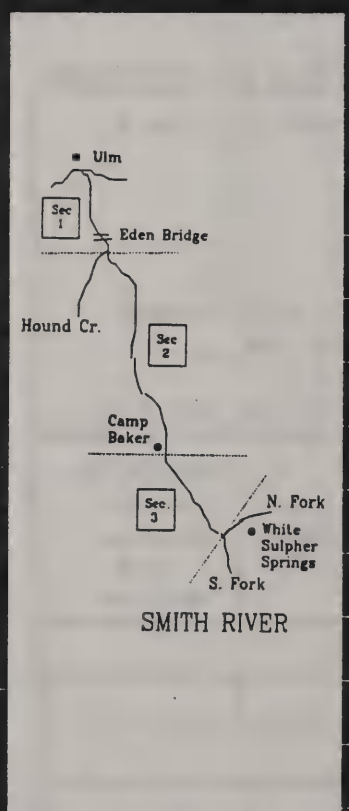

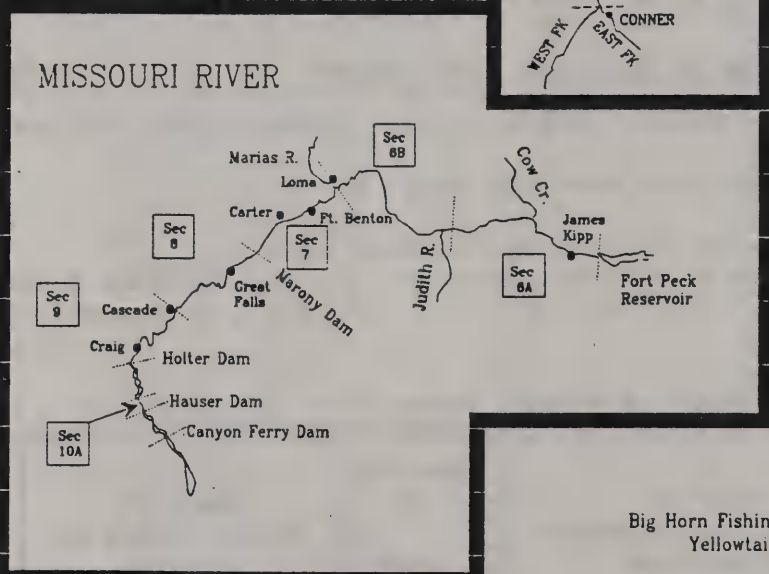

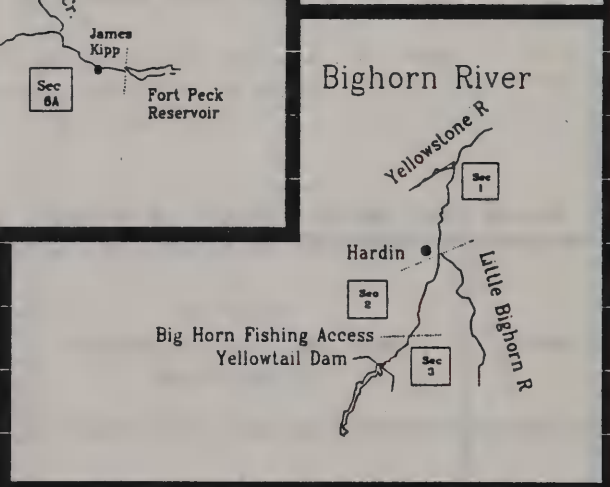

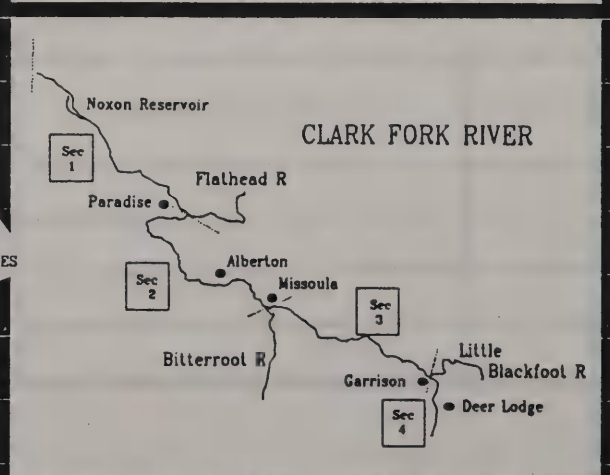

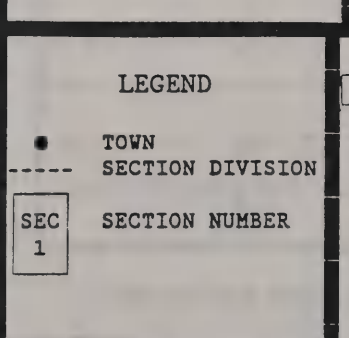

APPENDIX A

Examples of questionnaires

APPENDIX B
Boundaries of waters broken into sections

STREAM NAME		WATER CODE	DOWNSTREAM POINT	UPSTREAM POINT
BEAVER CREEK	SEC 01	15-0280	MOUTH	BEAVER CREEK RES.
	SEC 02	15-0320	BEAVER CREEK RES	BEAR PAW LAKE
	SEC 03	15-0340	BEAR PAW LAKE	ROCKY BOY INDIAN R
	SEC 04	15-0360	ROCKY BOY INDIAN RES	HEADWATERS
BIG HOLE R.	SEC 01	02-0425	MOUTH	DIVIDE CREEK
	SEC 02	02-0450	DIVIDE CREEK	PINTLAR CREEK
	SEC 03	02-0475	PINTLAR CREEK	HEADWATERS
BIG SPRING CR.	SEC 01	16-0301	JUDITH RIVER (MOUTH)	COTTONWOOD CREEK
	SEC 02	16-0310	COTTONWOOD CREEK	HEADWATERS
BIGHORN RIVER	SEC 01	22-0490	MOUTH	LITTLE BIGHORN RIVER
	SEC 02	22-0495	L.BIGHORN R	BIG HORN FAS(ACCESS CR)
	SEC 03	22-0496	(ACCESS CR.)BH-FAS	AFTERBAY
BITTERROOT R.	SEC 01	03-0475	MOUTH	BIG CREEK
	SEC 02	03-0500	BIG CREEK	HEADWATERS
BLACKFOOT R.	SEC 01	04-0600	MOUTH	CLEARWATER RIVER
	SEC 02	04-0630	CLEARWATER RIVER	ARRASTRA CREEK
	SEC 03	04-0660	ARRASTRA CREEK	HEADWATERS
BOULDER RIVER	SEC 01	22-0742	MOUTH	BOULDER FALLS(NAT BRDG)
	SEC 02	22-0756	NATURAL BRIDGE	HEADWATERS
	SEC 03	22-0770	BRIDGE CREEK	HEADWATERS
CLARK FORK R.	SEC 01	05-1440	IDAHO BORDER	FLATHEAD RIVER
	SEC 02	05-1456	FLATHEAD RIVER	BITTERROOT RIVER
	SEC 03	06-1121	BITTERROOT R	LITTLE BLACKFOOT R
	SEC 04	06-1140	LITTLE BLACKFOOT R	HEADWATERS

STREAM NAME		WATER CODE	DOWNSTREAM POINT	UPSTREAM POINT
CLARKS FK YELLOWSTONE				
	SEC 01	22-1162	MOUTH	BRIDGER
	SEC 02	22-1176	BRIDGER	WYOMING BORDER
	SEC 03	22-1190	WYOMING BORDER	HEADWATERS
CROW CREEK	SEC 01	07-1000	MOUTH	LOWER CROW RESERVOIR
	SEC 02	07-1020	LOWER CROW RESERVOIR	HEADWATERS
CUT BANK CREEK	SEC 01	14-1080	MOUTH	CUT BANK
	SEC 02	14-1120	CUT BANK	GLACIER PARK
FLATHEAD RIVER	SEC 01	07-1540	MOUTH	FLATHEAD LAKE
	SEC 02	07-1560	FLATHEAD LAKE	S FK FLATHEAD R
GALLATIN RIVER	SEC 01	09-2090	MOUTH	E GALLATIN RIVER
	SEC 02	09-6878	E GALLATIN RIVER	SPANISH CREEK
	SEC 03	09-6916	SPANISH CREEK	HEADWATERS
HYALITE CREEK	SEC 01	09-2546	MOUTH	HYALITE RESERVOIR
	SEC 02	09-6802	HYALITE RESERVOIR	HYALITE LAKE
JUDITH RIVER	SEC 01	16-1800	MOUTH	PLUM CREEK
	SEC 02	16-1820	PLUM CREEK	HEADWATERS
LITTLE BIGHORN RIVER				
	SEC 01	22-3654	MOUTH	LODGE GRASS CREEK
	SEC 02	22-3668	LODGE GRASS CREEK	HEADWATERS
LITTLE BLACKFOOT R				
	SEC 01	06-3772	MOUTH	ELLISTON
	SEC 02	06-3591	ELLISTON	HEADWATERS

STREAM NAME		WATER CODE	DOWNSTREAM POINT	UPSTREAM POINT
MADISON RIVER	SEC 01	13-3400	MOUTH	ENNIS LAKE
	SEC 02	13-3440	ENNIS LAKE	HEBGEN DAM
	SEC 03	13-3520	HEBGEN LAKE	YELLOWSTONE PARK
MARIAS RIVER	SEC 01	14-3240	MOUTH	TIBER DAM
	SEC 02	14-3280	LAKE ELWELL	CUT BANK CREEK
MILK RIVER	SEC 01	15-2680	MOUTH	HINSDALE
	SEC 02	15-2720	HINSDALE	MALTA
	SEC 03	15-2760	MALTA	HAVRE
	SEC 04	15-2800	HAVRE	FRESNO DAM
	SEC 05	15-2840	FRESNO RESERVOIR	CANADA
	SEC 06	15-2880	CANADA	MIDDLE & SOUTH FORKS
MISSOURI RIVER	SEC 01	16-2420	N DAKOTA BORDER	MILK RIVER
	SEC 05	16-2500	MILK RIVER	FORT PECK DAM
	SEC 06	16-2521	FT PECK RES	BLAIN/CHOUT CO LINE
	SEC 06B	16-2522	BLAIN/CHOUT CO LINE	MARIAS R
	SEC 07	17-4864	MARIAS RIVER	MORONY DAM
	SEC 08	17-4880	MORONY DAM	CASCADE BRIDGE
	SEC 09	17-4896	CASCADE BRIDGE	HOLTER DAM
	SEC 10A	17-4913	HOLTER LAKE	HAUSER DAM
	SEC 10B	17-4914	HAUSER LAKE	CANYON FERRY DAM
	SEC 11	17-4928	CANYON FERRY RES	TOSTON DAM
	SEC 12	17-4944	TOSTON DAM	HEADWATERS
MUSSELSHELL RIVER				
	SEC 01	18-4320	MOUTH	RT 3 BRIDGE NEAR LAVINA
	SEC 02	18-4350	RT 3 BRIDGE NEAR LAVINA	HEADWATERS
POPLAR RIVER	SEC 01	16-2820	MOUTH	E FK POPLAR RIVER
	SEC 02	16-2375	E FK POPLAR RIVER	CANADA
PRYOR CREEK	SEC 01	22-4802	MOUTH	PRYOR
	SEC 02	22-4816	PRYOR	HEADWATERS

STREAM NAME		WATER CODE	DOWNSTREAM POINT	UPSTREAM POINT
RED ROCK RIVER	SEC 01	01-6140	MOUTH	LIMA DAM
	SEC 02	01-6160	LIMA RESERVOIR	UPPER RED ROCK LK
ROCK CREEK	SEC 01	06-5263	MOUTH	HOGBACK CREEK
	SEC 02	06-5282	HOGBACK CREEK	HEADWATERS
ROCK CREEK	SEC 01	22-4928	MOUTH	W FK (CHROME CAMP)
	SEC 02	22-4956	W FK (CHROME CAMP)	HEADWATERS
RUBY RIVER	SEC 01	01-6360	MOUTH	RUBY RESERVOIR
	SEC 02	01-6380	RUBY RESERVOIR	HEADWATERS
SHIELDS RIVER	SEC 01	22-5334	MOUTH	CLYDE PARK
	SEC 02	22-5348	CLYDE PARK	WILSALL
	SEC 03	22-5362	WILSALL	HEADWATERS
SMITH RIVER	SEC 01	17-6816	MOUTH	HOUND CREEK
	SEC 02	17-6832	HOUND CREEK	CAMP BAKER
	SEC 03	17-6833	CAMP BAKER	HEADWATERS
STILLWATER R.	SEC 01	22-6104	MOUTH	NYE
	SEC 02	22-6118	W FK (NYE)	HEADWATERS
SUN RIVER	SEC 01	20-6050	MOUTH	MUDDY CREEK
	SEC 02	20-6100	MUDDY CREEK	GIBSON DAM
SWAN RIVER	SEC 01	07-4560	MOUTH	SWAN LAKE
	SEC 02	07-4580	SWAN LAKE	HEADWATERS
TETON RIVER	SEC 01	14-6000	MOUTH	CHOTEAU
	SEC 02	14-6040	CHOTEAU	HEADWATERS
THOMPSON RIVER	SEC 01	05-7248	MOUTH	BEND RANGER STATION
	SEC 02	05-7264	BEND RANGER STATION	HEADWATERS

STREAM NAME		WATER CODE	DOWNSTREAM POINT	UPSTREAM POINT
TONGUE RIVER	SEC 01	21-1150	MOUTH	BEAVER CREEK
	SEC 02	21-1200	BEAVER CREEK	TONGUE RIVER DAM
	SEC 03	21-1250	TONGUE RIVER RES	WYOMING BORDER
W FK STILLWATER R				
	SEC 01	22-6664	MOUTH	IRON CREEK
	SEC 02	22-6678	IRON CREEK	HEADWATERS
YAAK RIVER	SEC 01	11-7740	MOUTH	FALLS
	SEC 02	11-7760	FALLS	HEADWATERS
YELLOWSTONE R.	SEC 01	21-1350	N DAKOTA BORDER	POWDER RIVER
	SEC 02	21-1400	POWDER RIVER	BIGHORN RIVER
	SEC 03	22-7001	BIGHORN RIVER	HUNTLEY DIVERSION
	SEC 04A	22-7015	HUNTLEY DIVERSION	CLARKS FORK R
	SEC 05	22-7028	CLARKS FORK R	STILLWATER R
	SEC 06A	22-7043	STILLWATER R	BOULDER R
	SEC 07A	22-7057	BOULDER R	SPRINGDALE
	SEC 07B	22-7058	SPRINGDALE	SHIELDS R
	SEC 08A	22-7071	SHIELDS R	PINE CREEK
	SEC 08B	22-7072	PINE CREEK	TOM MINER CREEK
	SEC 09	22-7084	TOM MINER CREEK	GARDINER